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This journal was established to support educational research workers in all phases of the great problems of teaching. Started in 1920 under the editorship of Dr. B. R. Buckingham and associates among the members of an association of directors of educational research, and accepted as the official organ of the Educational Research Association, its purpose has at no time been confined to a narrow line of specialized research but has been concerned also with professional applications for all workers in education.

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JOURNAL *of* EDUCATIONAL RESEARCH

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EXPERIMENTAL COMPARISONS OF PRINT-SCRIPT AND CURSIVE WRITING

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THE relative merits of "manuscript" or print-like and the conventional cursive forms of writing have been considerably debated but not extensively investigated. The advocates of various types of manuscript writing usually claim that

1. Manuscript is easier for the beginner to learn.
2. Manuscript is typically more legible.
3. Manuscript gives greater satisfaction to pupils, especially in the primary grades.
4. Manuscript contributes more to reading and spelling.

The advocates of cursive writing, usually deny one or more of the four claims for manuscript writing and maintain one or both of the following advantages for the conventional form:

1. Cursive is typically more rapid.
2. Cursive is more useful; satisfying demands for rapid personal uses as well as for legible business and social needs.

The studies to be reported in this article have a bearing on all of the above claims except the fourth. In addition, some of them are concerned with the advisability of acquiring both forms of writing and the optimum time for doing so. The relation of cursive and manuscript writing to the development of reading and spelling is also under investigation at the present time.[1]

SOURCES OF DATA

All of the data were secured from Grades 1 to 6 inclusive in Public School 166, Manhattan, during 1926. The experimental teaching was conducted by the regular teachers[2] from February ninth until June tenth.

[1] By Miss Thelma Grady.

[2] To these teachers the authors are deeply indebted for unusually competent coöperation: Misses M. Cahill, M. Chatfield, H. Braun, M. White, R. Shafton, N. Cakefair, S. Marsden, and E. Laury.

In most classes four one-minute tests (following a warm-up period) were given with the following instructions elaborated:

1. "Write as you usually do."
2. "Write as well as you can."
3. "Write as you usually do."
4. "Write as fast as you can."

The order of the directions was varied. Such a series of tests was given in most classes four times during the term. The test text in the first grade was "A boy and a dog;" in the other grades, "The quick brown fox jumps over the lazy dog." The second text includes all of the letters in the alphabet.

Both cursive and manuscript specimens were graded independently by two experienced judges who used the Thorndike Scale as a standard of comparison. The quality or legibility scores are averages of the two ratings. Speed is recorded in letters per minute.

USE OF THE TERMS MANUSCRIPT AND PRINT-SCRIPT

The term "print-script" writing is used instead of "manuscript" writing since the latter term is more properly applied to writing entirely by means of downward strokes with a stub pen.[3] The writing examined in this study uses both up, down and circular strokes with pen or pencil. Tests were made with pencils. The forms and methods followed are similar to those described in the Beardsley and Stone and Smalley manuals.

RELATIVE EASE OF LEARNING PRINT-SCRIPT AND CURSIVE WRITING DURING THE FIRST YEAR

Forty-four pupils, in Grade 1B, were the subjects of the study. On February ninth, before systematic training in writing had been offered, all pupils were given two tests in cursive writing and two in print-script, following an explanation and demonstration of both types.

The results show that on the basis of previous experience, if any, the 44 children prior to school instruction wrote the two types with approximately equal quality but the print-like characters with slightly greater speed. Averages of the two tests for each type give a quality of 3.8 and a speed of 9.2 letters per minute for print-script compared with quality 3.75 and 8.2 letters for cursive.

Immediately after the tests, the pupils were separated into two groups

[3] Moore, Frances, *Handwriting for the Broad-edge Pen.* Boston: Ginn and Company, 1926.

of 22 each, substantially equivalent in age, intelligence and writing ability. One group was taught print-script and the other cursive writing during the term.

The formal instruction comprised twenty lessons of approximately twenty minutes each between February tenth and June tenth. The same teacher taught both groups by the same general methods and used the same texts. Aside from the writing lessons, all other class work for the two groups—which comprised halves of one large class—was identical. Thus, the influences of the teacher, the class room, incentives, the amount of writing, reading, etc., were kept equal. Care was exercised to prevent children practicing the type of writing in which they were untutored until they were directed to do so in June.

Tests were made in March, April and June. The two groups were tested on the same text at the same time. The results are shown in Table I.

TABLE I

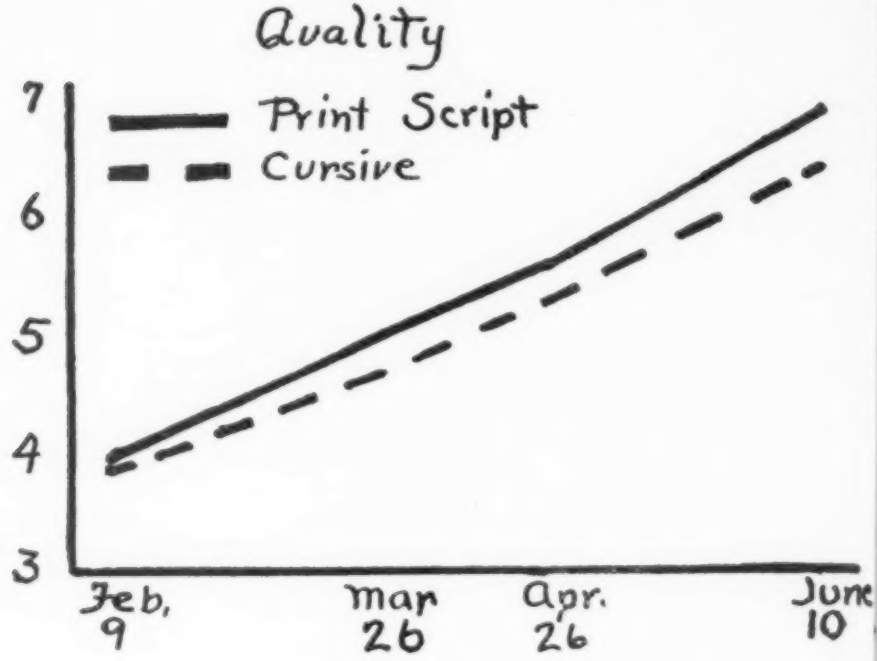
TWENTY-TWO FIRST GRADE PUPILS IN THE CURSIVE AND PRINT-SCRIPT GROUPS. QUALITY IN TERMS OF THORNDIKE SCALE. SPEED IN LETTERS PER MINUTE

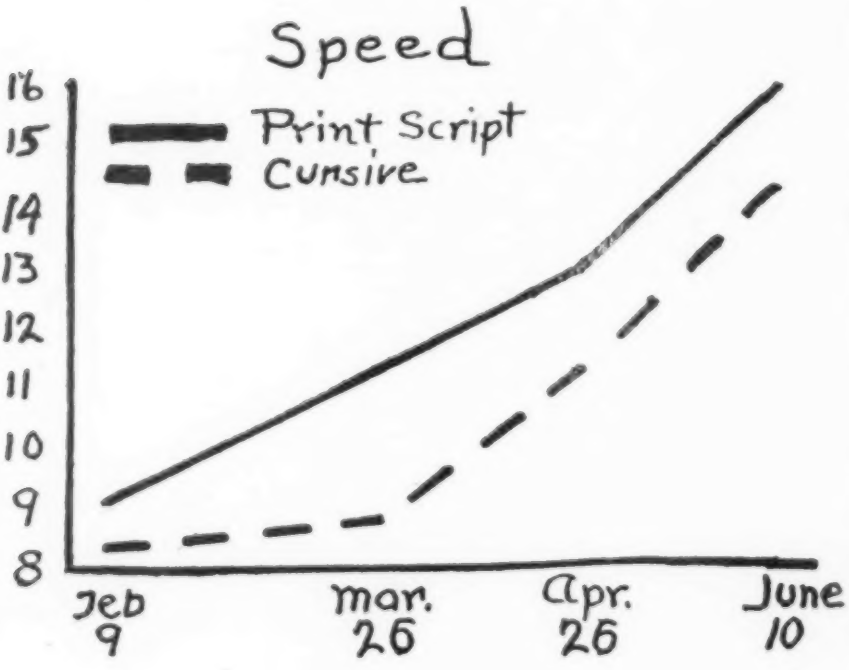
	February 9		*March 26*		*April 26*		*June 10*	
	Q	*Sp.*	*Q*	*Sp.*	*Q*	*Sp.*	*Q*	*Sp.*
Directions: "Write as well as you can."								
Print	4.0	8.1	5.2	9.4	5.7	10.4	6.9	12.7
Cursive	4.0	7.4	4.7	7.8	5.4	9.4	6.4	11.4
Directions: "Write as fast as you can."								
Print	3.6	10.3	4.7	12.6	5.4	14.4	6.6	19.6
Cursive	3.5	9.0	4.6	9.6	5.0	12.8	6.2	16.8
Average of all Tests								
Print	3.8	9.1	4.9	11.2	5.5	12.8	6.7	16.0
Cursive	3.7	8.3	4.6	8.7	5.2	11.2	6.3	14.2

The statistical reliabilities of differences between the various averages, although computed, are not given in the table. In general, the differences between "quality," as judged, average about twice the P. E. of the differences. The superiority of print-script in quality, although neither great nor highly reliable, is consistent. Although "most probably" real, the superiority of print-script writing in legibility, as adults judge it, here appears to be less great than most advocates of this new type of writing have commonly believed it to be.

It is in the rate of writing "as fast as you can" that the main advantage of print-script appears. After a semester of work, children writing print-script at top speed excel those writing the cursive style by 2.8 letters ($\pm$ P. E. of 1.2) per minute while their product is of equal or slightly greater quality.

The gross differences between the abilities developed may be shown by consolidating the scores for the "writing well," "writing fast" and





Figures I and II

writing "as usual" tests and by plotting these scores in graphic form. Figures I and II show the results.

In quality, the print-script shows a small advantage from the beginning to the end of the semester with a slight indication of an increase in superiority during the period.

In speed of writing, the curves reveal a basis for the real and assumed advantage of print-script in case of learning. The most conspicuous feature of this graph is the indication that *children develop rapidly from the beginning in speed of print writing whereas they are unable to make substantial progress in speed in cursive writing until after at least*[4] *a month and a half of practice.*

The superiority of print-script rate arises gradually from the beginning to a maximum somewhere near the end of a month and a half. At this point, the greater rapidity of print-script writing is probably perceptible to the observant teacher under ordinary working conditions. Once the pupils get started with cursive writing, they develop speed rapidly. Indeed, the indication of the curves is that sooner or later cursive will overtake print-script speed.

The claim that beginners learn print-script more rapidly than cursive is confirmed, with certain qualifications, by the results of this study. The qualifications are that the results were based on comparisons of one type of print-script (and not *manuscript* writing which is something else) and one type of cursive writing, as taught by one teacher by one method. The advantage seems to be chiefly in speed in typical writing rather than in legibility as adults see it. The advantage, moreover, is not very great although probably reliable. The advantage, finally, is most conspicuous in the rapid rise of print-script speed during the first six weeks.

RESULTS OF SYSTEMATIC TRAINING IN PRINT-SCRIPT IN COMPARISON WITH INCIDENTAL LEARNING OF CURSIVE SCRIPT

The second problem is concerned with the characteristics of print-script in higher grades. American teachers have frequently reported the conviction that the advantage of print-script, as far as speed is concerned, is short lived. As Reeder reported, for example: "the question arose at Horace Mann School as to whether manuscript writing can meet the needs of note taking and composition writing in the higher grades."[5]

[4] The phrase "at least" is introduced for the reason that the ascent may actually begin not exactly at March 26th, but at some later date prior to April 26th.

[5] Reeder, E. H., "An Experiment with Manuscript Writing in the Horace Mann School," *Teachers College Record*, (November, 1926), 255-260.

Reeder investigated in the Horace Mann School the possibility of speeding up print-script writing in Grades 4 and 5. He found that intensive drill for speed thrice a week for three months resulted in a marked increase in rate although most of the small groups studied remained appreciably below the cursive norms for the grade. In the present study, classes from grades 2 to 6 were included in a four months test of special drill on the print-script which followed upon from one to seven terms of previous training in this type of writing. Although class-room work, with exception of one class noted below, was confined to print-script, the pupils may have used cursive writing for incidental purposes. At each test period (in February and June for the three lowest classes and in February, March, April, and June for the higher four) trials were conducted for cursive as well as for print-script. Thus, in the case of each class, the development of cursive writing as the result of a brief introduction and desultory exercise, if any, is compared with the growth of print-script brought about by one or more years of class-room practice and instruction followed by a semester of intensive training in which a variety of incentives to improvement were utilized.

The different groups are briefly characterized and the results—based on the average of the four tests for "normal" "fast" and "best quality" writing—are given in Table II.

TABLE II

RESULTS OF SPECIAL TRAINING FOR PRINT-SCRIPT

	February 9th	*March 26th*	*April 26th*	*June 10th*
GRADE 2B—32 PUPILS. ALL PREVIOUS WRITING PRINT-SCRIPT. 20 MINUTES DAILY IN PRINT-SCRIPT. SPEED NOT EMPHASIZED				
			Quality	
Print	7.8			9.7
Curs.	7.0			8.1
			Speed	
Print	34			38
Curs.	12			16
GRADE 3B—40 PUPILS. 4 PREVIOUS TERMS PRINT-SCRIPT. 60-70 MINUTES WEEKLY TO DEVELOP SPEED IN PRINT-SCRIPT				
			Quality	
Print	9.2			9.7
Curs.	8.3			9.1
			Speed	
Print	40			50
Curs.	22			26
GRADE 3A—30 PUPILS. 22 ONLY PRINT-SCRIPT BEFORE; 8 HAD SOME CURSIVE. THREE 25 MINUTE PERIODS PER WEEK IN PRINT-SCRIPT				
			Quality	
Print	8.7			9.7
Curs.	7.3			9.3
			Speed	
Print	37			56
Curs.	18			22

GRADE 4B—48 PUPILS. MIXED GROUP: ALL SOME EXPERIENCE WITH BOTH, MOSTLY CURSIVE. 75 MINUTES WEEKLY IN PRINT-SCRIPT

		Quality		
Print	6.8	9.3	10.1	10.7
Curs.	9.4	9.3	9.6	9.5
		Speed		
Print	34	46	51	60
Curs.	70	73	62	62

GRADE 5A—43 PUPILS. ALL SOME PREVIOUS EXPERIENCE IN PRINT-SCRIPT BUT MOSTLY TRAINED IN CURSIVE. 80 MINUTES PER WEEK IN PRINT-SCRIPT

	February 9th	*March 26th*	*April 26th*	*June 10th*
		Quality		
Print	9.4	11.5	11.7	11.8
Curs.	9.9	10.5	10.5	10.4
		Speed		
Print	47	59	64	65
Curs.	72	77	77	79

GRADE 5B—42 PUPILS. AVERAGE ABOUT 2 PRECEDING TERMS PRINT-SCRIPT. PUPILS PERMITTED TO DO SOME CLASS WORK IN CURSIVE. 15 MINUTES DAILY IN PRINT-SCRIPT

		Quality		
Print	9.6	10.2	10.6	10.7
Curs.	9.9	9.5	9.9	9.8
		Speed		
Print	55	60	69	75
Curs.	75	69	79	88

GRADE 6A—37 PUPILS. FROM 1 TO 5 TERMS PRINT-SCRIPT; AVERAGE 2.5 TERMS. 20 MINUTES PER DAY PRINT-SCRIPT

		Quality		
Print	10.1	10.4	10.7	10.8
Curs.	10.4	10.1	10.0	10.0
		Speed		
Print	66	70	74	76
Curs.	78	80	82	86

A legibility equivalent to Quality 7 or 8 is probably sufficiently high in one's own writing to enable one to read one's own material at maximum speed. There is some evidence[6] that a legibility equivalent to Quality 10 on the Thorndike scale is sufficiently legible for most business and social usages. Print-script, when carefully taught as in these classes, reaches nearly the latter average legibility at the end of the third grade and surpasses it thereafter. Even intensive drill to increase speed does not reduce the quality below 10.7 in grades above the fourth. This fact is of some significance. It implies that, for the average child, speed rather than quality should be emphasized late in the third grade and thereafter, if the print-script is to be developed for personal and for ordinary business and social usages rather than for artistic purposes.

Although untrained in cursive writing and definitely prohibited from using it in most of these classes during the semester, and although trained in school to use print-script for one or more years previously, the pupils nevertheless show a gain in quality in cursive writing in grades 2B, 3B, 3A, and 5A. In 4B and 5B it remains practically constant and in 6A suffers

[6] Koos, L. V., "The Determination of Ultimate Standards of Quality in Handwriting," *Elementary School Journal*, Feb., 1918, p. 422.

a slight loss. The average change in the six classes is a gain of exactly two-thirds of a step on the Thorndike scale. This is probably due to the combined effects of transfer, the brief introductory training, and incidental practice. When some gain is secured with so little instruction and encouragement on the one hand and despite so much emphasis, instruction and practice in the rival form on the other, it is highly unlikely that training in print-script has a seriously deleterious effect upon cursive writing. Even under these circumstances cursive writing persists at a quality above 9 in grades 3 and 4 and at approximately 10 in grades 5 and 6.

The crucial problem, then, is one of rate. In Grades 2B, 3B and 3A, in which the pupils here considered had no more than a meager introduction to cursive writing at any time, the semester showed slow cursive writing at the beginning and little gain during the term. The pupils could write the cursive forms legibly but not rapidly. The effect of careful training and extensive practice in print-script was to increase the rate, as well as quality, appreciably in that form: A rate of 50 to 56 letters per minute at Quality 9.7 in Grade 3 is a very satisfactory achievement. Print-script, when taught as in these grades, doubtless reaches levels of proficiency in both legibility and speed sufficient for the needs of the first three grades.

In Grades 4, 5 and 6, the case is not so clear. Print-script, having been taught during several terms, with a sharp drive to increase speed during a whole semester, reaches rates of 60 in grade 4, 65 and 78 in grade 5 and 76 in grade 6.[7] These records are nearly equal to standards set up by several investigators for cursive writing.[8]

Although the cursive form had been little used for two years or more in school and definitely displaced so far as school practice was concerned, Grades 4B and higher had received school experience in cursive writing during their first year in school. Its use discouraged during the semester under investigation, the rate of cursive writing dropped from 70 to 62 in 4B, gained but 7 letters per minute in 5A, and but 8 in 6A. Yet in all of these grades, the pupils were able at the end of the drive on print-script to write more rapidly in the cursive style. The superiority for the four highest classes is approximately 10 letters per minute. In Grade

[7] These classes excelled the Horace Mann fourth and fifth grades, reported by Reeder as similarly trained for speed, by about 5 letters per minute.

[8] See article by F. N. Freeman. Department of Superintendence Third Yearbook, 1925, pages 205-216.

5B, in which the pupils were permitted to use the cursive form occasionally (although the drive was for speed in print-script), the cursive speed increased thirteen letters per minute and surpassed the print-script by thirteen. These data point very strongly toward the conclusion that while the speed of print-script can be increased to a very high level, the gain comes comparatively hard. Cursive writing lends itself more readily to fluency. With little special attention, cursive writing yields a speed greater than that secured by strenuous, highly motivated drill in print-script, in Grades 4 to 6.

COMPARISON OF PRACTICE FOR SPEED IN CURSIVE AND PRINT-SCRIPT IN SIXTH-GRADE GROUPS

Another check on the relative ease with which speed in print-script and cursive writings may be acquired was secured by a control group test in Grade 6. The two sixth grades showed a similar history of three or more terms of use of print-script writing. One of these is grade 6A, reported above, which continued print-script during the semester. The other class shifted to cursive, and received 15 minutes daily instruction and practice following a familiar method. The daily practice period was about 4 minutes less than that of the print-script group which therefore had the advantage in that respect. Since the 6B group was more advanced in general, eliminations from the two classes were made until they were substantially equal in writing ability as tested on February 9th, and as shown in Table III. This table also shows the scores on June 10th.

TABLE III

RESULTS OF TRAINING OF 6TH GRADE GROUP A IN PRINT-SCRIPT AND 6TH GRADE GROUP B IN CURSIVE FROM FEBRUARY 9TH TO JUNE 10TH

	Quality			Speed		
	Feb. 9th	*June 10th*	*Gain*	*Feb. 9th*	*June 10th*	*Gain*
Print Trained	10.10	10.71	0.61	67.5	78.6	11.1
Cursive Trained	10.01	10.66	0.65	68.9	90.4	21.5
Dif. favor Cursive			0.04			10.4
P. E. Dif.			0.09			2.2

The two classes gained equally in quality but the cursive group gained about twice as much—an amount equal to five times the P. E. difference—in speed. Here, then, is further evidence that speed of writing is more readily gained in cursive writing than in print-script in grades above the primary.

Table III is based on four tests, two for writing "as usual" one for writing "as well as possible," and one for writing "as fast as possible." Comparison of these results at the end of the training periods

may reveal something concerning the optimum services of the two kinds of writing.

TABLE IV

COMPARISON OF PRINT-SCRIPT GROUP AND CURSIVE TRAINED GROUP IN JUNE IN THE KIND OF WRITING ESPECIALLY TRAINED

	Write "Fast"	*Write "Normal"*	*Write "Well"*
		Quality	
Print Group	10.3	10.60	11.3
Curs. Group	10.55	10.67	10.8
		Speed	
Print Group	94.2	79.0	62.2
Curs. Group	111.0	90.0	70.6

Print-script quality varies more markedly than cursive with changes in rate. It drops more when the writing is hurried and rises more when quality is required. The highest quality of writing is obtained by print-script. Cursive, on the other hand, responds better to the demand for speed. At top speed, cursive writing reaches an average rate of 111 letters per minute as compared to 94.2 for print-script. The former rate is very high for this grade.

Summary: In summary, it may be said that in Grades 4 to 6 inclusive, print-script shows an advantage when high legibility or quality (as adult judges see it) is required whereas cursive writing is superior when the demand is for speed. In normal or typical writing, cursive is—other things equal—more rapid while print-script is slightly more legible, in Grades 4 to 6 inclusive. In Grade 1, during the first semester of experience in writing (but the second term in school) facility in print-script appears to be more readily learned. Rate and quality in print-script seem both to be acquired satisfactorily for normal purposes in Grade 2 and perhaps also in Grade 3.

In general, for all-around usefulness, print-script seems to be more suitable in the primary grades (1 and 2) and cursive in the grades above 4, with grade 3 uncertain.

INTERESTS IN CURSIVE AND PRINT-SCRIPT

In attempting to appraise the relative merits of cursive and print-script writing, one should attempt to determine the pupil's interests in and ideas about the two types. It would also be desirable accurately to ascertain what uses are made of each of the types of writing, where both can be commanded, and to consult the child concerning which seems to him to be most desirable for general use and for specific purposes. Some data were gathered by securing oral or written responses from the pupils.

Among children who had had some experience with both types, the preferences were as follows:

Grade	*1B*	*2B*	*3B*	*3A*	*5A*	*5B*	*6A*	*6B*
Favor Cursive	13	8	16	10	15	11	18	14
Favor Print	23	18	18	15	18	16	7	13
Favor Neither	..	..	..	2	8	8	2	10

On the whole, print-script is more popular. It is notably favored in Grades 1 and 2, less so in 3 and 5, while cursive is a favorite in Grade 6. Thus, facility and preference are closely related. How much the novelty of print-script—which can be shown to admiring parents and others who have never acquired the art—or the preferences of teachers and other such factors may have influenced the pupils' choices could not be ascertained.

The reason given most frequently by children for the preferences for print-script were: (1) It is easier; (2) It is plainer; (3) It is neater; (4) It is prettier; (5) It is "a boy's kind of writing." The most frequent preferences for cursive were: (1) It is faster; (2) It is what grown-ups use; (3) It is easier.

In Grades 3 and above, a considerable number of children stated that they did not prefer either form in general but that they liked each better for certain purposes. Some of the common usages for which print-type was favored were:

(1) Printing name plainly on books, cards, possessions, blanks, etc.
(2) Making black board, card-board and other notices, announcements, etc.
(3) Making titles for compositions, pictures, drawings, etc.
(4) Making descriptive legends for graphs, illustrations, etc., in many kinds of work.
(5) Writing invitations, poems, letters, and other compositions directed to others or for public display.

Cursive was, in the upper grades, favored chiefly for personal notes, compositions, etc., for business correspondence, and for correspondence with close acquaintances, especially when speed was important.

The pupils of this school, in the main, prefer to have both skills and assert that they can find abundant use for each. Many acquired both on their own accord. Why not lend a hand to this rather obvious inclination? This question leads to the last aspect of the study.

CHANGING FROM PRINT-SCRIPT TO CURSIVE

Some supporters of both the cursive and print-script writing have declared that there are two reasons for not learning both. The first is that

only one is needed, and that learning the other would be a waste of time; the second that neither can or will be learned well when both are attempted, or, at the least, learning both makes the learning of either a more difficult task. Interference, conflict, disorganization, it has been said, frequently follow attempts to teach two such antagonistic skills. Although one could resort to a number of studies in the psychological laboratory bearing on the issue, it is better to investigate the specific problem at hand. Within narrow limits, some data were secured from the first three grades.

Since every indication is that print-script, if taught at all, should be taught first and cursive later, the data obtained bear on this change. The three groups, considered below, are composed of children who had previously received school training only in print-script and whose school work was done wholly in this form. Table V gives the pertinent data concerning each class.

TABLE V

GRADE 1, 21 PUPILS, FIRST SEMESTER NO WRITING; SECOND SEMESTER TRAINING IN PRINT, EXCEPT FINAL THREE WEEKS DURING WHICH THREE LESSONS IN WRITING CURSIVE AND 20 MINUTES DAILY FOR PRACTICE WERE PROVIDED. TESTS IN BOTH FORMS OF WRITING BEFORE AND AFTER THIS PERIOD

	Quality		
	Before	*After*	*Gain*
Print	6.40	6.41	.01
Cursive	5.80	6.13	.33 or 55% of diff.
Diff.	0.60		
	Speed		
Print	15.5	15.7	.02
Cursive	10.1	12.4	2.30 or 42% of diff.
Diff.	5.4		

GRADE 2. 32 PUPILS. ONE YEAR PRINT, NO CURSIVE TAUGHT PREVIOUSLY. 3 PERIODS OF INSTRUCTION AND 3 WEEKS PRACTICE IN CURSIVE

	Quality		
Print	7.8	7.9	.01
Cursive	5.9	7.0	1.10 or 58% of diff.
Diff.	1.9		
	Speed		
Print	34.1	33.8	−.03
Cursive	15.2	25.8	10.60 or 56% of diff.
Diff.	18.9		

GRADE 3. 34 PUPILS. TWO YEARS PRINT, NO CURSIVE. 3 PERIODS OF INSTRUCTION AND 3 WEEKS PRACTICE IN CURSIVE

	Quality		
	Before	*After*	*Gain*
Print	8.8	8.9	0.01
Cursive	6.8	7.9	1.10 55% of diff.
Diff.	2.0		
	Speed		
Print	40.2	41.0	0.08
Cursive	24.2	34.2	10.00 63% of diff.
Diff.	16.0		

The authors interpret these data to mean that after spending from a semester to two years on print-script, cursive may be picked up very

rapidly. In these classes, three brief periods of instruction and demonstration combined with a dozen quarter-hour practice periods distributed over three school weeks enable the average pupil to close up more than half the gap between the two types of writing which previously existed and to achieve a respectable ability in both quality and rate of cursive writing. Evidence of serious conflict between the two skills did not appear. Pupils seemed to shift readily from one to the other. So far as one could see, the facilitations seemed to outweigh the interferences.

The data are too crude and unreliable to justify more than an implication that cursive can be added to print-script without obviously serious after-effects in Grades 1, 2 or 3. They are quite too crude to show at what time the change may be most economically made. Although they contain a suggestion that the pupils pick up the new form most rapidly in Grade 3, next in Grade 2, and least in Grade 1, the raw differences are small and the interpretations greatly involved in other factors. Nothing appears, however, to interfere with the suggestion that the best time to introduce cursive is the time when print-script no longer satisfies completely the demand for speed. Unfortunately, the present study did not reveal this time. It suggested merely that it might be before the fourth grade in such a school as Public School 166, Manhattan.

SUMMARY

Under the conditions of the study, the following facts were suggested:

1. Print-script is learned a little more rapidly than cursive writing during the first half year of training. The advantage in quality is slight; the advantage in speed—which is greater on the whole—is most pronounced during the first six to ten weeks.

2. Print-script can, by dint of intensive practice, be speeded up to approximately the grade "norms" for Grades 3 to 6, inclusive.

3. Print-script seems to be well liked by pupils, especially in the lower grades.

4. Print-script is favored in all grades for writing legends, headings, names, verse and various social usages.

5. Cursive writing seems to hold nearly even with print-script (when allowances for differences in practice are made) in legibility as judged by adults.

6. Cursive writing seems clearly to be naturally a more rapid form for Grades 4 to 6 inclusive. There were no adequate data for Grades 2 and 3. Strenuous measures applied to increase the rate of print-script

during a semester failed to produce a speed equal to that acquired incidentally, in out-of-school work, in cursive writing.

7. Many pupils favor learning both types of writing on the grounds that each is better for specific purposes.

8. It was found that pupils in Grades 1, 2 and 3, previously taught print-script, acquired considerable facility in cursive without apparent deleterious effects during three weeks of short daily practice periods with only two or three periods devoted to instruction or demonstration.

DISCUSSION

Before changes in practice could validly be recommended, certain further investigations should be made. The gaps found in the studies here reported, especially in Grades 2 and 3, should be filled. Whether the results obtained in this school would be duplicated elsewhere should be known. The authors believe that similar results would be obtained in schools using the same types of print-script and cursive writing. But study of various writing manuals and visits to different schools show that there are several forms of manuscript and print-like writing in use. There are, indeed, several types of cursive alphabets. The authors believe that the greatest present need is for a thorough investigation of all forms of manuscript, print-script and cursive writing for the purpose of determining the particular merits of each. Connors and Kirk have made a beginning by the study of the cursive forms taught to pupils which break down as soon as the pressure of school control is removed.[9] They find evidence that there still remain in typical cursive alphabets superfluous elements which retard speed. L. C. and S. L. Pressey have recently shown that some of these unnecessary letter formations also reduce legibility.[10] There is need for a thorough-going experimental appraisal of the writing alphabets in order to select series of letter forms that can be learned more easily and that will result both in more rapid writing and greater legibility than any of the current types. Perhaps by selecting the best elements from cursives and print-scripts, a writing alphabet may be discovered which, by combining the merits of the various existing rivals, will be superior to any one and make the learning of two alphabets unnecessary.

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[9] *Bulletins of Bureau of Educational Research*, Cleveland, Ohio, 1927-1928.
[10] *Educational Research Bulletin*, September 28, 1927, No. 13.

WHAT THE CLASSICAL INVESTIGATION HAS ACCOMPLISHED

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SLOWLY gathering dust in the archives at Washington is a formidable array of tests, questionnaires and studies,—the documentary evidence of the Classical Investigation. The General Report, published in 1924 after three years of effort in gathering and organizing these data, may be considered of no more vital influence, its results may be called harmful or beneficial—depending upon whose criticism we happen to be reading. Irrespective of results, the fact that such an investigation was deemed of sufficient general interest to be justified is shown by the fact that this vast project was financed by the General Education Board. Rockefeller millions aided in establishing the status of the teaching of Latin and Greek in our secondary schools; ancient culture was brought to trial and given a hearing through the profits of this machine age.

To one who has studied the Report from the viewpoint of a student in the general field of secondary education, and also a teacher of Latin, the articles that it has called forth in classical magazines and other educational publications are of tremendous interest. Many of the classicists seemed to think that the millenium had arrived. Now with definite objectives, a miraculous cure-all method of reading Latin as Latin, together with suggestions for combining the teaching of Latin with everything from history, archeology, numismatics, epigraphy, comparative religion, ethnology, sociology, to the arts of bridge-building, toga-draping, manufacture of artillery and making of soap models of the Forum and Roman house, Latin was represented as the *sine qua non* in every well-rounded curriculum. Without Latin one simply could not acquire an understanding of his mother tongue or other modern languages. In spite of the unstable status in which the theory of mental discipline finds itself the more biased advocates of Latin still attempted to build a case for it on disciplinary values. On the other hand, there appeared articles by the extreme educational generalists condemning the Report as amateurish, the work of special pleaders, absolutely unscientific, a case of the blind leading the blind until one would think that the considerable sum entrusted to the Classical League might better have been expended in collecting data for such profitless debates as those of the Schoolmen of the Middle Ages.

For a time it seemed that the attempts to determine and settle disputed points had served only to kindle fires of controversy. Then there began to appear those heretics within the ranks who dared say that the Report would not revolutionize teaching, that perhaps the method suggested was not the indisputably best and only feasible one, that while much had been accomplished many problems were still unsolved. Moreover, to state objectives was easier than to attain them, and to outline a course of procedure far less difficult than to put it into effect. Finally, there came acknowledgment from some in the field of general education who really recognized an earnest effort for improvement in Latin teaching. Buckingham even as early as November, 1921, called the project "the most progressive, the most fearless, and the most complete program of investigation which has ever been attempted by any group of teachers." The pronouncements of Judd, McAndrew, and Rugg did not change his verdict. In the June, 1928, issue of the *Journal of Educational Research* appeared Buckingham's editorial setting forth the chilly reception given the Report by educational people and bestowing ample recognition on the excellent work of the Committee. He pays tribute to the healthy reactions on the part of teachers of Latin and concludes: "The Latinists without the assistance of educationists are interpreting to the schools of the country the constructive program to which the Classical Investigation was devoted." Thus the extremists of both sides have had their say and now those of the middle ground are establishing a less controversial point of view.

As far back as 1887 there was published a pamphlet by Dr. William Gardner Hale on "The Art of Reading Latin" in which he advocated the 'reading Latin as Latin' method so strongly championed by the authors of the Report. We may wonder why his method has not long ago become the prevalent one. In view of the fact that this brilliant pamphlet did not revolutionize Latin teaching one cannot say how great or how permanent will be the effect of this latest Committee Report. It may be that it will be taken no more seriously by the rank and file of Latin teachers than was Dr. Hale's work. But we can say that there are indications that such will not be the case. Many of the obstacles that existed in his day and that still exist to some extent are being gradually removed. Certain beneficial results are already seen.

Objectives, method and content in teaching must always depend largely on the textbook and at present there is a lively contest among the publishers to produce such books as will best carry out "the spirit

and specific recommendations of the Report of the Classical Investigation." It is often said that a good teacher can teach with any textbook. More might have been said in support of that statement when our high schools were more selective, when preparation for college was an all-compelling motive for mastery of Latin, and when there was not the complexity of our present-day environment to interfere with intensive study. Then if a book contained the essentials of vocabulary, syntax, and inflections and some material on which to practice these, it was sufficient. The docile pupil took drill as a necessary part of the routine and did not have to be fed with choice tidbits in order to be interested. The disciplinary objectives loomed large. Whatever was lacking in the way of explanation and arrangement a really good teacher could supply. Now Latin can no longer rely *par excellence* on disciplinary values. Thorndike has demonstrated that no one subject has more right than any other to claim such magic powers. "The differences between studies in respect of it [general improvement] are small, so that the value of studies may be decided largely by consideration of the special training which they give; and (that) the languages have no claims to preëminence." Latin must stand on its own merits—must prove that it is worthwhile for itself.

For this reason the modern teaching stresses its instrumental values in helping to understand the mother tongue and its cultural values in giving a broader outlook on the civilization of the Romans, their ideals, attitudes and contributions to modern life. Those who studied Latin before 1924 may be skeptical as to the possibility of combining interesting cultural material, general language study and derivative work with the fundamentals necessary for acquiring a reading knowledge of Latin. The Investigation showed that with the inadequate preparation of a large percentage of the teachers, meager library facilities in the smaller schools and increased demands on pupils' time, it would be absolutely necessary to have texts that afford such a combination.

The result has been the publication of many first and second year books which are a great improvement over the old type. One series, for example, seems almost an ideal embodiment of the recommendations of the Report; in fact, has made what appeared a visionary and unattainable goal a possible and decidedly practical plan. The first-year book alone would give a course eminently worthwhile in itself aside from any function as preparation for subsequent reading. It contains accounts in Latin of Roman life, stories from Roman history, and myths

in simple form. Everywhere the approach to syntax, vocabulary and inflections is psychological rather than logical; in other words, the material is presented in a gradual and natural way adapted to the student's ability to comprehend and absorb, not in the formal order dear to the heart of the grammarian. The laws of learning are followed throughout. A knowledge of inflections must function; it is not considered sufficient to know the forms in the set arrangement of the paradigms. The bonds between English language structure and Latin are frequently called to attention and practical exercises leading to improvement in both languages are given. Derivatives are introduced in English sentences that the student may get a correct feeling for the word and increase his active and passive vocabularies. In the second-year book the same psychological principles are carried out. Caesar is not given until the beginning of the fourth semester, and then only the easier parts; there are synopses in English of the parts omitted. Formerly the student completed a two-year course with a smattering of accounts of campaigns against the Helvetians and Germans, wars among the Belgians and Veneti, and an expedition to Britain, for thus ended Book IV and the required reading. He saw no relation between these bloody battles and tedious marches and the great movement which affected all subsequent history. The narrative as given in this book makes evident such a relation. For the first semester we find well-chosen "made" or adapted Latin, brief selections from classical authors, a few translations from Martial, Ovid, Horace, and Catullus; accordingly, the complete second-year course gives a far more adequate idea of Roman life and literature than did the content of former Caesar texts. We hear that work is in progress among several publishers on texts for third- and fourth-year Latin which will present a wider variety of authors, more interesting subject-matter, and greater meaning and appeal to the modern boy and girl.

As an important by-product of the Investigation, we have the numerous standardized tests which were used for the objective testing program. A great impetus has been given to working out new tests since that time. With better norms of achievement the Latin teachers can have a scientific basis for measuring the attainment of whatever objectives they set themselves. There are now diagnostic tests for remedial purposes and prognostic tests for assisting in determining aptitude for the study. The pedagogy of Latin and justification of its place in the curriculum can be put on just as concrete a foundation as that

of any other subject. Teachers of Latin have been warned lest in all this testing they lose sight of spiritual and immeasurable values—"our intangible asset." Surely as much of these should be retained as possible, but it must also be remembered that the time has come when every subject must prove its worth. "Everything must be judged by its performance instead of by its reputation," says McAndrew. "Latin is on trial, of course. So is everything."

During the process of the Investigation, many studies were made of existing practices in teaching and lesson preparation. The Uhl, Grise and Swan studies brought out the fact that students spent more time on Latin than any other subject. Such evidence made it especially imperative to prove that they were getting full value for this expenditure. Studies of teaching procedure were made both from the viewpoint of pupils and of teachers. To be sure, these were based largely on the questionnaire method,—a method deserving of some of the criticism given the Report by Butterfield for its reliance upon what he calls "the plenary inspiration of the dotted line." Nevertheless, the collection and presentation of such data does call attention to divergence between theory and practice and encourages a pedagogical "setting one's house in order."

But in addition to the studies of this type, some of a more tangible and scientific nature were made. Of exceeding value are the word counts and etymological studies which have come out of the Investigation. These will tend toward greater definiteness of aim and objectivity in the making of texts and the teaching of Latin if they are sufficiently used.

There have been changes in state and city courses of study. A teacher may be an earnest believer in the doctrines of the Report, but if she is handicapped by an antiquated course of study which insists on four books of Caesar, six orations of Cicero, and six books of Vergil without privilege of variation in quantity or any substitutions, she is absolutely helpless. But fortunately all over the country changes are being made. New York has recently issued a tentative syllabus conforming to the recommendations. In the introduction it is definitely stated that the syllabus "sets as a goal those aims and principles which the Classical Investigation has made familiar to every Latin teacher." At the 1928 summer session of Indiana University a committee of teachers worked out a very elaborate and detailed course of study for use with the new textbooks adopted by the state; this pays its respects to the Report on almost every page.

But textbooks and courses of study defer to the requirements of the College Entrance Examination Board since the majority of teachers must keep in mind, more or less, the college preparatory function. Therefore we consider that the most fundamental and far-reaching effect of the Report is seen in the radical changes in these requirements. They go even beyond the suggestions in the Report. According to the definition adopted April 10, 1926, there will be after 1929 no prescription of the amount or content of the Latin reading of our schools. The translation will be at sight. It is expected that examinations in three-year and fourth-year Latin will also contain passages for comprehension at sight. There was promised a word list—which was published in 1927—for the guidance of the Board's examiners and teachers of candidates preparing for the examinations. Since colleges admitting on certificate are influenced largely by the College Entrance Board requirements, these changes should greatly enlarge the freedom of the secondary-school teacher as to content of the course, especially as publishers are not lethargic in preparing suitable texts. Judd commented very favorably on the work of the commission which made this revision and was particularly enthusiastic over the plan of a word list, but he did not mention that this progress was due to the Investigation, which he had previously criticized with such severity. That the Investigation does deserve the credit is proved by an editorial in *School and Society* for February 13, 1926:

"Following a consideration of the Report of the American Classical League, a commission of the College Entrance Examination Board has drawn up a proposed revision of the Board's examinations in Latin which calls for certain simplifications."

It was the report of this commission which was adopted at the next meeting of the Board. The new pamphlet recently issued by the Board gives credit to the same source.

The Report has had intangible effects on the spirit of teachers and teaching. There is a new enthusiasm and assurance. Professor Briggs and Dr. Strayer have borne testimony to this. We have already referred to Buckingham's tribute. J. C. Hanna, State Supervisor of High Schools in Illinois, is positive that a great awakening is coming to pass—"the extraordinary piece of work done by the American Classical League is bearing fruit." These are his words taken from a paper given at the Illinois conference at Urbana in November, 1927.

In spite of overzealous advocates who have claimed too much for the Report, bitter opponents who have been free to scoff and ridicule and the vast number of those educationalists and classicists who have given an indifferent hearing, the Investigation has already produced far-reaching effects. Through its influence Latin is being adjusted to the complexity of the modern environment and to our changing school population. The Report recognized the new trends in secondary education; and Latin is now making for itself a substantial and well-deserved place in the curriculum,—not as a required subject, but as an elective capable of affording an interesting and profitable educational experience for those who show reasonable aptitude for linguistic studies.

GREAT TEACHERS AND SOME METHODS OF PRODUCING THEM

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Association of American Colleges

THE college teacher is under fire. That a man should have more than mere scholarship or a capacity for research as qualifications for this job is recognized by many administrators. The attacks on elementary- and secondary-school teaching which led to the requirement of pedagogical training are now leveled upon college teaching. College teachers are being rated by their students. Records of successful methods and devices in college teaching have in recent months appeared with increasing frequency in educational literature. Administrators sensitive to the changing times are installing "in service" training for teachers and encouraging the discussion and study of educational topics by faculty members.

With the idea of collecting data both stimulating and helpful in its bearing upon this problem, two schedules were sent to the executives of 349 representative colleges and universities. One had to do with the so-called "great teachers" in the past or present. The other dealt with the matter of faculty building in its various aspects. Space will not permit the reproduction of these schedules nor a detailed account of the replies to all questions. A few from each, however, have been selected as being of special interest and significance.

GREAT TEACHERS

Every college president would like to assemble a faculty of "great teachers," although as will be disclosed in the data presented there is little unanimity as to the qualities which constitute the genus. In this first schedule, 162 college executives have drawn upon their own experience and that of colleagues, alumni and students in the attempt to portray the great teachers of their institutions. In most instances two or three teachers (as requested in the schedule) were estimated by each correspondent, but a number reported upon four, five, and occasionally six or more.

To the question: "What were their earned degrees? From what institutions?" tabulatable data were secured concerning 362 teachers as shown in Table I.

The doctor's and master's degrees together with the bachelors of divinity (sometimes implying training equivalent to the master's or doctor's) constitute 80.9 percent of the total number.

TABLE I

ACADEMIC TRAINING OF 362 GREAT TEACHERS

Highest Degree	No. of Teachers	Percent
Ph.D., Sc.D., Pd.D., M.D.*	142	39.2
M.A., M.S.*	142	39.2
B.D.	9	2.5
B.A., B.S.*	62	17.1
No degree	7	2.0
Total	362	100.0
Total with degrees	355	98.0

*And equivalent.

The replies to the question concerning the sources of degrees show a wide range, although in a number of instances the sources were not reported. Forty institutions are represented in the 106 doctor's degrees

TABLE II

TERMS OF SERVICE OF GREAT TEACHERS*

Note: In the following tabulation service began in the period indicated in the first column and terminated in the same period or in that indicated in the second column.

From	To	Frequency
1841-50		1
1841-50	1851-60	1
1851-60	1891-1900	1
1851-60	1901-1910	2
1861-70	1871-80	3
1861-70	1881-90	4
1861-70	1891-1900	2
1861-70	1901-1910	1
1861-70	1911-1920	2
1861-70	present	1
1871-80		1
1871-80	1881-90	1
1871-80	1891-1900	6
1871-80	1901-1910	1
1871-80	1911-1920	6
1871-80	1921-27	3
1871-80	present	4
1881-90		1
1881-90	1891-1900	3
1881-90	1901-1910	6
1881-90	1911-1920	5
1881-90	1921-27	6
1881-90	present	15
1891-1900		1
1891-1900	1901-1910	10
1891-1900	1911-1920	8
1891-1900	1921-27	5
1891-1900	present	20
1901-1910		3
1901-1910	1911-1920	4
1901-1910	1921-27	3
1901-1910	present	29
1911-1920		4
1911-1920	1921-27	4
1911-1920	present	45
1921-27		3
1921-27	present	18
		233

* The 233 distributions recorded were reported in such a way as to make it impossible to compute with absolute accuracy the total number of teachers under consideration.

with sources given. Chicago leads with 11; Columbia follows with 10; Cornell University, Harvard, and Johns Hopkins have 8 each; Yale 5; Iowa State, New York University, Wisconsin and Pennsylvania 4 each. Four foreign universities are named. Sixty-two institutions are listed as sources of 116 master's degrees. Columbia leads with 11; then follow Chicago 10; Harvard, Michigan, Princeton, and Vanderbilt 5 each; and Wisconsin 4. Seventy-seven or 73 percent of the 106 doctor's degrees and 64 or 55 percent of the 116 master's degrees were conferred by institutions holding membership in the Association of American Universities.

Table II shows the periods in which these teachers served. One hundred and thirteen or 48 percent of the distributions fall between 1901 and 1927, and an additional 40 or 17 percent of those who began teaching in earlier periods are reported as still in service.

TABLE III

SUBJECTS TAUGHT BY GREAT TEACHERS WITH THE FREQUENCY NAMED BY 158 INSTITUTIONS

English and English Literature	68	Modern Languages	6
Mathematics	57	Geology	5
Philosophy	44	Political Science	5
Greek	42	French	4
Latin	40	Language	4
History	36	Botany	3
Biology	30	Religion	3
Chemistry	29	Zoology	3
Bible	24	Art	2
Science	20	Classic Art	2
Education	17	Astronomy	2
Social Science	13	Ethics	2
German	12	Government	2
Psychology	12	Hebrew	2
Physics	9	Logic	2
Economics	8	New Testament	2
Sociology	8	Theology	2

The following subjects were mentioned once each:

Business Administration	Nature Study
Christian Evidences	Practical Theology
Dramatic Art	Religious Education
Law	Sacred Language and Literature
Music	Spanish
	Theism

To the question: "What subjects did they teach?" 158 replied. Table III shows the frequency with which the various subjects are named. A certain amount of overlapping is evident where a general field, such as science, is named in some instances and its specific branches in others. No doubt this is partly due to the fact that in the earlier periods a professor frequently taught more than one subject in the same field or related field.

The next question, "What were the qualities, attitudes and methods that were given the highest rating?" brought forth a great variety of

replies. Table IV lists 111 qualities and attitudes named by 128 executives. (The replies on "methods" were so few as to be discarded.) To the reader many of these may seem practically identical in meaning though not in language, but because slight distinctions are evident or possible, the authors refrained from grouping them in larger units, preferring to adhere closely to the individual listings.

TABLE IV

QUALITIES AND ATTITUDES OF GREAT TEACHERS REPORTED BY 128 COLLEGE EXECUTIVES

Interest in students, love of students, sympathy, helpfulness, etc.	50	Personal contacts	4
Knowledge or mastery of subject, scholarship	37	Clearness of teaching	3
Personality	22	Devotion	3
Character	17	Friendliness	3
Enthusiasm	11	Good common sense	3
Sincerity	11	Keen insight	3
Ability to inspire students	10	Mental alertness	3
Thoroughness	10	Religious influence	3
High requirements from students	9	Ability to make interesting	2
Ability to stimulate thought	7	Ability to interpret life's meanings and values	2
Breadth	7	Clear thinking	2
Industry	7	Clearness	2
Patience	7	Culture	2
Accuracy	6	Frankness	2
Fairness	6	Interest	2
Ability to impart, "to put it across," etc.	5	Interest in work	2
Interest in or love of subject	5	Precept and example	2
Humanness, human interest, etc.	5	Readiness to sacrifice time and energy to further work of college	2
Coöperation	4	Refinement of speech	2
High idealism	4	Religious devotion	2
Honesty	4	Research	2
Honesty in attitude toward truth	4	Respect	2
Integrity	4	Service	2
Loyalty	4		

The following were named once each:

Able to arouse initiative
Adaptability to student needs
Adaptation
Affableness
Assurance
Charity
Christian convictions
Christian gentlemen, who worked at it
Christian idealism
Conscientiousness in assigned duties
Conservatism
Constructive attitude
Coöperative relations in conducting subject matter
Earnestness
Effective speaker
Fidelity to duty as he saw it
Gentlemen
Great desire for working with youth
High standards of honor
Highly cultivated mind
Humbleness
Humor
Incisiveness
Independent
Intellectual industry
Intelligence
Interest in general problems of education
Interest in good teaching
Interesting and thorough teacher
Leadership in ideational matters
Lecturer (public)
Loving disposition
Lucidity of expression
Manliness
Moral power
Much time in student conferences
Originality in spirit and method
Permanent student mind
Perseverance
Persistence
Philosophy of life
Power of apt and concise illustration
Practical application
Preparedness
Professional equipment
Religious convictions
Resourcefulness
Reverence for truth
Self-assertive
Simplicity
Sincerity combined with good fellowship
Skill in going to heart of subject
Spirit
Spiritual mindedness
Spiritual power
Stimulating moral idealism
Strictness combined with sympathy
Success in classroom management
Tact
True enjoyment of the enlarging vision in the particular field
Unselfishness
Utter trustworthiness
Wholesome attitude
"One highly regarded by public on account of success of students in competition."

One hundred and sixty replied to the question: "Did they have positive religious influence?" Of these 138 or 87 percent answered "Yes" and but 3 or 2 percent "No." There were 19 or 14 percent—miscellaneous replies, for the most part divided answers.

As to how this influence was measured, 125 reported as follows: By effect upon students and on college life, and on alumni in later life through example, character, developing of character, right living, by means of personal contacts, classroom attitudes, teaching, etc., 80; by church relationships, attendance at chapel, religious exercises, etc., 27; by testimony of students, alumni, citizens, "general opinion," etc., 18; by influence upon vocational choice, 9; miscellaneous, 9.

Of the 147 replies to the question: "To what extent did their students go on for graduate work or professional study?" 78 or 53 percent used such terms as "many", "large percent", "rather remarkable degree", "considerable extent", "good number", etc. Fourteen or 9 percent reported specific ratios, varying from 5 to 80 percent. Another 9 percent replied, "average", "fair number", "not particularly", etc. Eight or five percent "do not know," and 34 or 23 percent fall in the miscellaneous group. Many of the latter are divided answers and among the others are such comments as "Not much in vogue", "Somewhat in their day. Not so many did graduate work", etc.

Another question, "To what extent did these teachers stimulate the students to frequent the library?" was answered by 151 executives. Of these 87 or 58 percent reported "constant use", "large extent", "greatly", "considerably", etc. Among these were such replies, as: "They were adepts in it"; "Time spent in library equaled or surpassed time spent in regular text study"; and "Not only stimulated most of the students to frequent the library, but encouraged many of them to begin libraries of their own." Eleven or 7 percent said "average", "fairly", "not very much", etc. Another five admitted that they did not know and 48 replies fall in the miscellaneous class. In this last group there were a number of replies such as the following: "Library facilities insufficient at time these men taught", "Library poor in those days."

FACULTY BUILDING

One hundred and eighty-seven replies were received to the second schedule. To the first question, "What are you doing to enlist your own best students for college teaching?" 179 replied, several reporting more than one effort in this direction. Table V shows the distribution of replies.

TABLE V

THE ENLISTMENT OF BEST STUDENTS FOR COLLEGE TEACHING IN 179 INSTITUTIONS

Encouraging them to go on for graduate work (12 of these also aid students in securing fellowships, scholarships, etc.)	73
Through personal conferences, interviews, or individual efforts on the part of the president, dean, major adviser, heads of departments, or other faculty members	28
Courses in Education, Departments of Education, etc	22
Assistantships, instructorships, etc	15
Vocational advice through chapel addresses, vocational conferences, guidance, etc	8
Giving encouragement (method not specified)	7
Calling attention to the opportunities and rewards of teaching	6
Placement service	4
Setting a good example	3
Emphasizing need of college teachers, Christian teachers, virile teachers, etc	3
Holding up teaching ideal	2
Miscellaneous	28
Nothing, no definite effort, no special plans, etc	16

To the second question, "To what extent are you developing your faculty from your own students?" 162 replied, 73 in terms of percentages or figures as appear in Tables VI and VII. Seventeen others employed such terms as "largely", "a majority", etc., and 19 "little", "nothing", etc. Of the 53 replies falling in the miscellaneous group, 30 seemed to indicate a policy favoring the use of alumni to greater or less extent and 12 quite definitely expressed a fear of inbreeding with consequent limitation.

TABLE VI

PERCENTAGES OF ALUMNI ON FACULTIES

Percent	No. of Institutions
1-10	7
11-20	15
21-30	16
31-40	7
41-50	6
51-60	2
75	1
Total	54

TABLE VII

NUMBER OF ALUMNI ON FACULTIES (PERCENTAGES NOT GIVEN)

No. of Alumni	No. of Institutions
1	4
2	4
3	1
4	1
5	5
6	2
8	2
Total	19

"To what extent are you developing your faculty from your own staff?", received 108 replies, several reporting a number of methods. Fifty-six or 52 percent of these mentioned encouraging graduate study in summer school, by leaves of absence, sabbatical leaves, sixteen of which report some financial assistance. Promotion from lower to higher rank was named by 17, and increases in salary with additional study by 5. Eleven said "largely", "considerable extent", etc., and the same number "very little", "not at all", etc. Fourteen were classed as miscellaneous from which we quote the following: "'In service' training of our teachers is a matter just now receiving systematic attention"; "Encouraged to hold departmental meetings and to do research work"; "As

far as possible instructors are encouraged to improve in teaching technique and in research"; and, "By faculty meeting talks and reports and by suggested readings in the educational journals and bulletins."

The answers to the question, "Do you prefer to have college teachers with educational training?" appear in Table VIII. Three failed to reply and of the remaining 184, 74.8 percent answered "yes" or equivocally "yes", and 25 or 13.5 percent "no" or equivocally "no."

TABLE VIII

PREFERENCES OF 184 COLLEGE EXECUTIVES AS TO THE EDUCATIONAL TRAINING OF COLLEGE TEACHERS

	Number	Percent
Yes	117	63.6
Equivocally "Yes"	20	11.0
No	22	11.9
Equivocally "No"	3	1.6
Miscellaneous	15	8.1
No opinion or preference	7	3.8
Total number of replies	184	100.0

A question of vital interest to college teachers in general is that regarding the basis of promotion. To ascertain the current practice two questions were asked: "Do you promote on the basis of good teaching?" and "Do you promote on the basis of research and publication?" To the first 181 replied, 112 or 66 percent reporting promotion primarily upon the basis of good teaching. Forty-eight of those replying to both questions said that both factors were taken into consideration. Of the 153 replies to the second question (including the 48 mentioned above), 7 or 5 percent said "Yes" and 64 or 42 percent answered "No." There were a number of miscellaneous replies which could not be tabulated.

CONCLUSIONS

1. Since 80.9 percent of the great teachers under consideration were reported as holding the degree of master, doctor, or bachelor of divinity, their academic training cannot be very seriously criticized, particularly in view of the fact that many of them taught at a time when the master's degree was rated as high scholastic qualification. The fact that 60.8 percent achieved what is considered greatness in spite of their lack of the doctorate may be significant.

2. The sources of these degrees are for the most part universities of the highest rank.

3. According to the reports of college executives, 65 percent of the "great teachers" either served in the period 1901-27 or began service in earlier periods which has continued to the present.

4. As to the subjects taught, science, if all forms listed are added together, ranks first, and the ancient languages second, indicative perhaps of the curricular emphasis in the later and earlier periods. English and English Literature ranks third, mathematics fourth, and philosophy fifth.

5. Of the qualities and attitudes attributed to great teachers it is significant that "interest in students, sympathetic and helpful attitude", etc., received the largest poll; "Scholarship, mastery of subject", etc., ranked second; and "personality" third. Although "character" is fourth, the reader will discover that a large number of character traits are given specific mention. The ability to teach or impart is named but five times, but it is possible that the same idea may have been in the minds of others who couched it in different terms. It is obvious, however, that the great teachers are not estimated chiefly in terms of pedagogical technique.

6. There was a more nearly unanimous testimony (on the basis of the percentage of replies received) that great teachers have positive religious influence than in any other item of appraisal.

7. Many of the great teachers were instrumental in inspiring students to go on for graduate work or professional study.

8. The use of the library by students was stimulated to a marked degree by a majority of these teachers.

9. Encouraging graduate study and personal conferences with students are the most frequently named methods of enlisting the best students for college teaching. Only 15 report the appointment of their students to assistantships and instructorships, and in a large number of other cases it is doubtful that much effective missionary work is being done.

10. A large number of institutions are employing alumni who have done graduate work, the percentages in their faculties varying widely.

11. Replies to the question concerning the development of the faculty from the staff indicate that relatively little of a constructive nature is being done. The authors believe, however, that many of the correspondents failed to do themselves justice in this respect. References to sabbatic leaves, for example, were surprisingly few, as were also methods assisting in the development of professional study while in service.

12. The preferences expressed as to educational training indicate a growing appreciation of its advantages for the college teacher.

13. The majority of the colleges under consideration make good teaching the chief item in promotion. This is all the more significant since the accrediting agencies have not used this standard.

On the whole it is believed by the authors that the measures of effective teaching here suggested are more significant and vital than those in use by the national and regional standardizing agencies. That the North Central Association is seeking more vital standards is an encouraging sign of the times.

CORRELATION STUDIES OF THE STUDENT'S ABILITY INDEX

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IN a previous study[1] the writer developed a student's ability index based upon the age progress of the student through school combined with the measure of his success in meeting the curriculum requirements as indicated by the teachers' marks. This index was determined by the formula:

$$SAI = \frac{Mk}{CA} \times \frac{MGA}{GMk}$$

in which SAI indicates any student's ability index, Mk is the student's average mark in the grade in which the work is done, CA is the student's chronological age, MGA is the mental grade-age, that is, the average mental age of students working in the same grade, and GMk is the grade-mark or the average mark obtained by students in the grade. The practical use of the formula depended upon finding a proper value for the second member, $\frac{MGA}{GMk}$, as a constant. To this end the value of MGA was taken from the well-known work of Terman and others on 1,936 California children. For GMk several series of SAI's were computed for 508 students in School B of a town system, assuming varying values of GMk in each series.[2] It was to be desired that the distribution of the SAI's might be compared directly with the distribution of Binet IQ's for the same students but this was not possible. As an alternative a comparison of the distribution of the SAI's in each series was made with the distributions of Binet IQ's as found by others in the general population and a close conformity was observed to prevail. On the whole, 85 appeared to be the most practicable working value for GMk in this school and was so adopted.

Later it was learned that the superintendent of schools had arranged for an Otis Classification Test of all children in the fourth to the eighth grade throughout the school system about a month preceding the end of the semester for which the SAI's had been computed. The writer did

[1] Banker, Howard J. "A Student's Ability Index from Teachers' Marks." *Journal of Educational Research*, XVII, (May, 1928), 357-364.

[2] Banker, Howard J. "The Practical Application of the Student's Ability Index." *Journal of Educational Research*, XVIII, (November, 1928), 282-289.

not know of this at the time and the two pieces of work were entirely independent. The use of the test scores was generously granted and from them Otis IQ's were computed for 342 of the 508 students of School B, in accordance with the rule given in the "Manual of Directions."[3] Table I gives a comparison of the distribution of these Otis IQ's with the SAI series and the Binet IQ's as presented in our previous paper.[4] It is noticeable that in all three types of indices the divergences of the curves of distribution from each other are about the same and

TABLE I

PERCENTAGE DISTRIBUTION OF OTIS IQ'S IN SCHOOL B COMPARED WITH DISTRIBUTION OF SAI'S IN SAME SCHOOL AND WITH BINET IQ'S OF OTHER POPULATIONS

Midpoint Interval of 10	342 Otis IQ's	508 SAI's	905 Binet IQ's Terman	14,463 Binet IQ's Strachan	6,063 Binet IQ's Strachan
50	.6				
60	2.0	.8	.3	.6	1.2
70	4.1	4.9	2.3	2.2	3.0
80	13.7	9.1	8.6	7.8	9.0
90	22.8	21.7	20.1	19.2	20.2
100	24.6	21.9	33.9	30.7	32.2
110	18.4	26.6	23.1	26.2	23.7
120	9.6	13.4	9.0	10.3	8.8
130	4.1	1.6	2.3	2.3	1.6
140		.2	.5	.4	.4
Closeness of fit					
to Otis IQ		2.9	3.2	3.2	2.9
to SAI	2.9		2.9	2.2	2.5

may be represented by 3 as the index of fit.[5] In the case of the Otis IQ it is apparent that a considerable portion of the non-conformity is due to the shift of this distribution as a whole on the scale. In this respect it appears of some significance that the SAI distribution gives a slightly closer fit to the Binet IQ's than does the group test. The administrator of a Binet test may obtain an accurate measure of each child's reaction. In a group test a child will hardly make a better score than is warranted by his ability and one or more children may fail to do themselves justice at the time of the test, hence the obtained mean IQ will not be greater and may be less than the true mean. On the other hand the SAI, being

[3] Otis, Arthur S. *Otis Classification Test—Manual of Directions.* (Yonkers-on-Hudson. World Book Company, 1923), p. 23.

[4] Banker, Howard J. "The Practical Application of the Student's Ability Index." *loc. cit.*, especially Table II, p. 287.

[5] The index of the closeness of fit is simply the mean difference between the two distributions. See Banker, Howard J. "The Practical Application of the Student's Ability Index." *loc. cit.* p. 287.

based on the work of the student over a period of weeks, the accidental fluctuations in reaction are averaged out and the mean SAI approaches more nearly the true mean.

It is of more interest, however, to determine the direct correlation of the Otis IQ's with the SAI series. In the ten half-grades of School B, from grade 4B to 8A inclusive, there were 331 students who had taken the Otis test on December 9th and for whom the SAI could be computed at the close of the semester on January 26th following. The correlation between the indices for each of these students was determined by Pearson's method of moments, ungrouped. Table II gives the summary for each half-grade of the means, standard deviations and coefficients of correlation with their probable errors. The coefficients range from .70 to .92 with a mean for the ten half-grades of a little over .82. This appears to indicate a high degree of relationship between the SAI and the Otis IQ as determined for this school.

TABLE II

SUMMARY OF CORRELATION OF SAI WITH OTIS IQ IN SCHOOL B

Grades	No. of Students	Otis IQ		SAI		Coefficient of Correlation
		Mean	Standard Deviation	Mean	Standard Deviation	
4B	29	93.1 ± 1.50	12.01 ± 1.06	102.2 ± 1.73	13.80 ± 1.22	.7073 ± .0626
4A	27	88.7 ± 2.40	18.50 ± 1.70	102.2 ± 2.35	18.12 ± 1.66	.9224 ± .0194
5B	37	93.6 ± 1.27	11.44 ± .70	99.4 ± 1.23	11.06 ± .87	.7470 ± .0490
5A	21	95.6 ± 2.41	16.35 ± 1.70	103.6 ± 2.23	15.14 ± 1.58	.8306 ± .0457
6B	33	105.2 ± 2.13	18.18 ± 1.51	106.2 ± 1.46	12.43 ± 1.03	.8455 ± .0335
6A	19	85.7 ± 2.66	17.16 ± 1.88	91.7 ± 2.14	13.82 ± 1.51	.8756 ± .0361
7B	30	99.0 ± 1.78	14.47 ± 1.26	98.8 ± 1.33	10.84 ± .94	.8086 ± .0426
7A	32	98.2 ± 1.78	14.89 ± 1.26	100.5 ± 1.34	11.26 ± .95	.8694 ± .0291
8B	47	101.3 ± 1.29	13.13 ± .91	92.3 ± 1.47	14.93 ± 1.04	.8379 ± .0293
8A	56	100.3 ± 1.18	13.11 ± .84	92.7 ± 1.21	13.42 ± .86	.8083 ± .0312
Totals	331	960.7	149.24	989.6	134.82	8.2526
Average per class	33.1	96.1	14.92	99.0	13.48	.8253

The question may be raised whether the results obtained are not due to exceptional conditions with respect to this particular institution. The only complete answer that we can suggest would be to carry through similar studies in other and very different schools. This, if considered important, must be left to others. It was possible, however, to compile correlation tables for the SAI with the Otis IQ in other schools of the same town system based on similar data and of the same dates as those for Table II. The results, so far as the coefficients of correlation are concerned, are given in Table III. On the whole these coefficients do not differ greatly from the findings for School B, the general average coefficient being about .80. The one serious discrepancy is in grade 4A of School E where the coefficient is practically nil. As there were only

nine students in this grade and the probable error is very large, little significance can be attached to this. If this one case were to be omitted, the average coefficient for the remaining twenty classes would actually exceed that for the ten classes of School B.

In all of the above described work the value 85 was taken for GMk. It is evident from the formula that variations in this factor have the effect of throwing the SAI distribution as a whole up or down the scale, that is, may raise or lower the mean but do not essentially affect the relative rank of the SAI's in the series, since the latter is determined by the unaffected variable for each student. We should expect, therefore, that the correlation of any of the SAI series for School B with the

TABLE III

CORRELATION OF SAI WITH OTIS IQ IN SCHOOLS C, D AND E OF A TOWN SYSTEM

Grades	School C		School D		School E	
	No. of students	Coefficient of Correlation	No. of students	Coefficient of Correlation	No. of students	Coefficient of Correlation
4B	28	.8816 ± .0284	16	.7138 ± .0827	20	.7736 ± .0606
4A	21	.8958 ± .0291	15	.6833 ± .0928	9	.0344 ± .2246
5B	29	.8787 ± .0285	15	.9412 ± .0199	15	.9113 ± .0295
5A	17	.8854 ± .0354	14	.8763 ± .0418	13	.9421 ± .0210
6B			40	.8451 ± .0305	21	.8791 ± .0334
6A			23	.7833 ± .0543	8	.8454 ± .0680
7B			36	.7589 ± .0477	18	.8616 ± .0607
7A			32	.8571 ± .0316		
8B			39	.7266 ± .0510		
8A			27	.7632 ± .0542		
Totals	95	3.5415	257	7.9488	104	5.2475
Averages per class	23.8	.8854	25.7	.7949	14.9	.7496

General average per class for the three schools .7970.

Otis IQ's would give essentially like coefficients. This expectation is confirmed by Table IV which gives the coefficients of correlation per grade for the Otis IQ with each of the two series SAIa and SAIe[6] based on the most extreme values of GMk, 82.17 and 88.35 respectively. In comparison with the probable errors the coefficients for the same grades in each series differ by insignificant amounts and the mean coefficient for the ten grades in each series in Table IV is .82+, essentially the same as the mean coefficient in Table II. Our formula, therefore, appears to be thoroughly workable with a large margin of safety and yields a series of indices highly comparable in respect to relative rank with IQ's obtained by a standard group test. How the indices may compare with true Binet IQ's is yet problematical but the indications are favorable.

[6] Banker, Howard J. "The Practical Application of the Student's Ability Index." *loc. cit.* pp. 285-287.

A further critical test of the value of the SAI as an index of ability may be applied by determining the self-correlation in successive semesters. If the correlations ran relatively high it would be evidence that the index is a reliable measure of a fairly constant factor in the intellectual reactions of the student. As a check and for the purpose of comparison it was thought to be of advantage to determine the self-correlation of the average teachers' marks for the same students in the successive semesters. Of the 508 students in School B whose marks had been compiled for the first semester there were 393 promoted to the succeeding half-grade whose marks were available in the second semester. The coefficients of correlation were computed per class between

TABLE IV

COEFFICIENTS OF CORRELATION PER GRADE FOR OTIS IQ WITH SAIa AND SAIe BASED ON THE EXTREME VALUES OF GMK, 82.17 AND 88.35 RESPECTIVELY, IN SCHOOL B

Grades	No. of students	Coefficients of Correlation	
		SAIa	SAIe
4B	29	.7036 ± .0632	.7051 ± .0630
4A	27	.9225 ± .0193	.9231 ± .0192
5B	37	.7458 ± .0492	.7541 ± .0478
5A	21	.8329 ± .0451	.8359 ± .0443
6B	33	.8505 ± .0325	.8503 ± .0325
6A	19	.8736 ± .0366	.8760 ± .0360
7B	30	.8125 ± .0418	.8036 ± .0436
7A	32	.8687 ± .0293	.8661 ± .0298
8B	47	.8379 ± .0293	.8384 ± .0292
8A	56	.8047 ± .0318	.8074 ± .0314
Totals	331	8.2527	8.2600
Average per class	33.1	.8253	.8260

the average final or promotion marks in several subjects[7] as credited to each student for the two semesters. Table V gives the results of this work. Six of the fifteen groups or classes were taught and marked both semesters by the same teacher. These are indicated in the table by italics, the other nine were under different teachers each semester. As would be expected the average coefficient for the six classes, .92, is higher than for the nine classes, .86, yet even the latter shows a remarkably high degree of correlation in the relative grading of the students by these teachers, much higher than I have found reported elsewhere.

The last column of this table gives the self-correlation of the SAI's computed for the same 393 students. It needs little comment. The most significant fact is that in *every* instance the coefficient of correlation is materially increased over that of the preceding column, high as that

[7] The subjects were: reading, writing, arithmetic, spelling, language, geography, history, physiology, algebra and biology, of which from four to eight were included in each grade.

was, indicating that the SAI furnishes a more accurate measure of student ability than do raw teachers' marks and is, therefore, a serviceable instrument of correction. Moreover, the very high coefficients obtained are in themselves facts of decided import. Dr. McCall[8] has said; "The range of self-correlation for most standard tests is about .5 to about .9 while the range for typical teachers' examinations is much

TABLE V

SELF-CORRELATION OF TEACHERS' MARKS AND OF SAI'S IN TWO SUCCESSIVE SEMESTERS FOR SCHOOL B

Grades*	No. of students	Coefficients of Correlation	
		Average Marks	SAI's
1B – 1A	27	.8986 ± .0250	.9812 ± .0048
1A – 2B	16	.6691 ± .0931	.8245 ± .0540
2B – 2A	19	.9323 ± .0202	.9841 ± .0049
2A – 3B	22	.8679 ± .0355	.9739 ± .0074
3B – 3A	24	.9034 ± .0253	.9684 ± .0086
3A – 4B	24	.8931 ± .0279	.9491 ± .0137
4B – 4A	29	.8887 ± .0263	.9617 ± .0094
4A – 5B	27	.9582 ± .0106	.9911 ± .0023
5B – 5A	33	.7972 ± .0428	.8929 ± .0238
5A – 6B	21	.9632 ± .0106	.9900 ± .0029
6B – 6A	32	.9461 ± .0125	.9862 ± .0033
6A – 7B	17	.8434 ± .0472	.9455 ± .0173
7B – 7A	29	.9003 ± .0237	.9522 ± .0117
7A – 8B	32	.9305 ± .0159	.9625 ± .0088
8B – 8A	41	.9204 ± .0161	.9577 ± .0087
Totals	393	13.3124	14.3210
Average per class	26.2	.8875	.9547

* Grades in italics were taught both semesters by the same teacher, in all other cases by different teachers.

AVERAGE COEFFICIENT OF CORRELATION FOR	Marks	SAI's
the six cases by same teacher	.9212	.9788
the nine cases by different teachers	.8650	.9387

lower. A criterion of .9 or above would disqualify most educational tests." Dr. Otis[9] claims for his group tests a self-correlation of about .93 and for the "Classification Test as a whole" a self-correlation of .953, which he evidently considers ample guarantee of its reliability. Our SAI's with an average self-correlation better than .95 evidently fully meet the highest criterion expected for the reliability of an intelligence index.

A number of interesting facts incidental to this work might be presented if space permitted. We have shown that an index of student ability may be derived from the usual records of school performance which has a distribution of like character with the distribution of an

[8] McCall, William A. *How to Measure in Education.* (New York, The Macmillan Company, 1922), p. 396.

[9] Otis, Arthur S. *op. cit.*, p. 51.

intelligence quotient in the general population; such an index, when determined for a given group of students, yields a high coefficient of correlation with the results of a standard group test and is, therefore, competent for indical purposes; finally, the self-correlation or measure of reliability of the index is higher than that of the teachers' marks from which it is derived and is equal to the highest standard required of educational tests. It seems evident, therefore, that the student's ability index is an instrument of reliable and valuable service in the progress of educational investigations.

THE BEGINNINGS OF TEACHER TRAINING IN MINNESOTA

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THE Territory of Minnesota was organized in 1849. The legislature held its first session the same year and enacted a law establishing a system of common schools. This law though subsequently amended in certain particulars laid the foundations of the public school system in the Territory. In 1851, the second Territorial legislature granted the University of Minnesota a charter which contained a provision that one of the departments of the University should be "a department of the theory and practice of teaching."[1] It would seem that the proponents of this law intended to establish a normal department within the University, probably similar in character and purpose to that which was created in the University of Iowa four years later.[2]

For reasons that need not concern us here the Territorial University of Minnesota never materialized, and when the State was organized in 1858 the friends of public education either ignored the provision for teacher training which was contained in the Territorial law, or were unaware of its existence.

It should be noted, however, that the idea of a normal school as a separate and distinct institution was making progress. In 1839 the first American public normal schools were established in Massachusetts. These were three in number and were soon followed by similar institutions in New York, Pennsylvania, Connecticut, Michigan, Rhode Island, Illinois, South Carolina, and Louisiana.

As many of the most intelligent and active among the pioneer settlers of Minnesota were drawn from the Eastern states we can readily understand their enlightened attitude towards public education. Many came from states which already had normal schools in operation. Hence we need not be surprised to find the early legislators receptive to the proposal to establish state normal schools. At any rate the first state legislature of Minnesota passed in 1858 a general law under which the Winona Normal School came into being as "the first state normal school west of the Mississippi and the fourteenth in the United States."[3]

The man who deserves most credit for suggesting this legislation and for taking active measures to establish the first normal school in the

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[1] *Laws of Minnesota, 1851*, Ch. 3, Sec. 10.

[2] See *University of Iowa Extension Bulletin, College of Education Series*, No. 13, p. 25.

[3] *Historical Sketch of Winona Normal School*, p. 5.

great Northwest is Dr. John D. Ford, a native of New Hampshire. By common accord Dr. Ford has been given the honored title of "Father of the Minnesota Normal School System." He was a graduate of Dartmouth College and of a medical college in Philadelphia. For a time he practiced medicine in Norwich, Connecticut, where he became interested in the educational institutions of that city and labored on behalf of the common schools. He came west for the purpose of recuperating his health and settled in the thriving little city of Winona in 1856. He soon identified himself with the progress of the local schools, but the crowning effort of his life was the establishment of the normal school system.[4]

Dr. Ford's endeavors were ably seconded by the delegation to the state legislature sent from Winona County. The bill was passed by the House with an overwhelming majority and received the unanimous support of the Senate.[5] The result was a general law which provided for three state normal schools subject to certain conditions and restrictions. It declared that the first should be opened within five years in any community which donated the sum of five thousand dollars in money and lands, or in money alone, a like sum to be appropriated by the State. A second might be opened in ten years and a third in fifteen years, provided, however, that communities in which normal schools were to be located complied with the conditions stated above.[6]

The response of the citizens of Winona to this progressive educational measure may be judged from their promptness in complying with the stipulated conditions. A local newspaper of the period tells us that the citizens raised by subscription "in a few hours" the sum of $7000, $2000 in excess of the amount required by the act.[7]

The following extract from another contemporary newspaper shows that among the pioneers of Minnesota there were men who had sufficient vision to recognize the important contribution which the normal school was to make to the cause of public education. "The normal school system, which has received but comparatively little aid or encouragement from the Government, lies at the foundation of all others; and to be rendered useful to the greatest and most profitable degree, should be the

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[4] Bunnell: *Winona, and Its Environs on the Mississippi in Ancient and Modern Days.* p. 418.

[5] *House Journal,* 1858, pp. 850, 922; *Senate Journal,* 1858, p. 623.

[6] *General Laws of Minnesota,* 1858, Ch. 79.

[7] *Winona Republican,* August 17, 1859.

first to be established and put into practice and thus pave the way both for a common school system and for the most advanced collegiate course."[8]

The Winona normal school was opened in the fall of 1860. There was no session in 1862-64, but except for this break it has had a continuous career.[9] The early years were the most difficult. The period of the Civil War was not favorable to educational endeavor in a young and struggling commonwealth like Minnesota. The cost of building had not been liberally provided for by the legislature nor adequately understood by the people. Hence, it was soon seen that the erection of a single school was all that could be undertaken at one time.

In 1868, however, the city of Mankato offered the State a donation of $5000 as required by the Act of 1858 and the legislature appropriated a like sum in accordance with the provisions of the same law.[10] The third normal school was offered to St. Cloud whose citizens subscribed the necessary $5000 and procured a suitable building in which the school was opened in 1869.[11]

Thus scarcely more than ten years elapsed from the date of the enactment of the first normal school law until three teacher-training institutions were functioning in the state of Minnesota. The original law did not specify the exact location of the proposed normal schools, leaving to the Normal School Board the task of dividing the State into normal school districts by uniting, for the formation of each, two adjacent judicial districts.[12]

In 1877, a law was passed enacting that the "normal schools heretofore established to educate and prepare teachers for the common schools of the State, shall hereafter be designated and known as the State Normal School at Winona, the State Normal School at Mankato, and the State Normal School at St. Cloud."[13]

Most of the instructors in the normal schools of Minnesota during the first two decades came from the eastern states and the influence of the Oswego normal was dominant.[14] The reports of the state and county

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[8] *Winona Daily Review*, November 23, 1859.

[9] *Historical Sketch of Winona State Normal School*, p. 253.

[10] *Nineteenth Annual Report of the State Superintendent of Public Instruction*, St. Paul, p. 69.

[11] *Ibid.*, pp. 70-71.

[12] *General Laws of Minnesota*, 1858, Ch. 79, Sec. 6.

[13] *Ibid.*, 1877, Ch. 74, Sec. IX, Sub-Sec. 1.

[14] See the statement of Mr. Phelps, Principal of Winona Normal School cited in *Historical Sketch of Winona State Normal School*, p. 49.

superintendents during these years show clearly that the normal schools made an important contribution to the State's educational progress. Their main work, of course, was the training of teachers, but the normal instructors were frequently called upon to speak at teachers' institutes, and for several years the normal schools provided a large proportion of the educational leadership so much needed during these early decades.

At the present time, when the need of trained teachers is universally conceded, we are likely to forget that a different attitude prevailed during the sixties and seventies of the last century. Nor need we be surprised that men who were struggling with the difficulties of pioneer life in a large and sparsely settled State did not all share the visions of educational statesmen. There was no small amount of opposition to, and criticism of, the normal school system. Indeed, there was opposition in almost every session of the legislature until, in 1876, the special appropriation was refused and the normal schools were left to struggle as best they might on the meager annual grant. Even as late as 1878 the state superintendent, David Burt, found it necessary to urge that "the normal schools deserve support adequate to their work."[15]

Succeeding years were to witness rapid developments in Minnesota's educational system. Among the new agencies that came to exercise a potent influence must be numbered the public high schools and the State University. Of course, the normal schools still continued to make an important contribution but in later years it has been less conspicuous than during the first two decades when they played a leading rôle in laying the educational foundations of the State.

[15] *Nineteenth Annual Report of the State Superintendent of Public Instruction*, St. Paul, 1878, p. 75.

EDITORIALS

RESEARCH FOR TEACHERS

Professor W. W. Charters pointed out in a recent editorial[1] that there are two major objectives in education, namely, (a) the acquisition of the abilities, knowledges, skills, attitudes, and ideals prerequisite to the continuance of present standards of culture and performance on the one hand, and (b) the acquisition of the tools of thinking prerequisite to the solution of the unanticipated problems of a changing society on the other hand. Without denying the importance of the first of these objectives, (the first is important) one recognizes from both the current practices and theoretical discussions of practices that more emphasis than ever before is being placed upon problem solving and the acquisition of correct and economical habits of organizing problem solving activities on the part of school pupils. The emphasis is such that one sees in the good teacher to-day one who does not merely teach facts but one who provides considerable practice in the art of recognizing problems and selecting means for their solution. It is true that in the initial stages of learning many of the problems to which pupils are set are not new and, with an occasional exception, the solutions are of value only to the pupil himself, but educational theory has come to recognize problem solving as a mode of training of first importance.

Undoubtedly teachers can increase their power to direct the thinking of pupils toward the organization of problem solving activities if their supervisors allow problem solving on the part of the teachers themselves and give them help as needed. Are teachers then to be allowed to think about educational problems, to entertain points of view relative to educational practices and to solve problems? The teacher's problems are actual opportunities and real values result from their solution.

There are really three questions involved herein: (a) Is it reasonable to assume that the training of teachers in service might be facilitated through problem solving? (b) Will the solutions to these problems be of value to others than the teacher herself? (c) Because of these solutions may the teacher entertain educational points of view

[1] *Journal of Educational Research*, XIX (February, 1929), 141-142.

of her own? Briefly, supervision, from one point of view, is the teaching of teachers how to teach, and it would seem that principals, supervisors, and superintendents might profitably apply to the training of teachers in service those training procedures which the science, philosophy, and practice of education have found to be most effective in the training of school children, of course, with such modifications in the instructional program as differences in the maturity of teachers and pupils warrant. In the initial stages of a teacher's training in such work under supervision, her solutions to problems will be of value mainly to the teacher herself. There will be exceptions. As she gains in experience in teaching, and in research, her solutions to problems may be of interest to other teachers and to principals, supervisors, and superintendents. She may ultimately entertain viewpoints of her own, based not merely upon traditions, unanalyzed experiences and authority, but upon scientific fact. Broadly speaking, she will be a much more efficient teacher.

In making this statement it is recognized that scientific experimentation is a very difficult and complicated matter,—much more so than the average lay and technical worker realizes. It is also recognized that not all teachers will rise to the level of contributors to the science of education. This, of course, is also true of many so-called research workers. One can see already a tendency on the part of the educational practitioner to put entirely too much faith in the training researches of both teachers and research workers. But viewed broadly supervisors to-day seem all too frequently to assume that they alone are to see problems, solve problems, and do the educational thinking prerequisite to the successful management of school systems. Having decided matters, they hand down their solutions in the form of methods to be applied, textbooks to be used, courses of study to be followed, and policies to be pursued for teachers to put into operation. The teachers then only teach.

If one were to visit a classroom and should find the teacher doing all of the thinking, entertaining all of the points of view and doing all of the problem solving we would say that that teacher was a poor teacher. Judged from this point of view, much of the supervision to-day is poor supervision.

A. S. B.

REVIEWS

Address all communications relative to book reviews to Editor E. J. Ashbaugh, Ohio State University, Columbus, Ohio.

BROWN, MAUD A. *Teaching Health In Fargo.* New York: The Commonwealth Fund, Division of Publications, 1929. xiv + 142 pp.

For five years a health demonstration has been under way in Fargo, North Dakota, a community of approximately 27,000 population. This volume presents the story of classroom instruction which was a single phase of the health work during this period. Propaganda, drill and rationalization was the sequence by which a sound health regime was introduced into the life of the child. The facts of health behavior were presented by direct instruction, and then correlated with other subjects. The volume is profusely illustrated with pictures taken directly from the work as it was carried on. The whole volume should be of real help to any teacher or principal interested in making the health work more vital in his own school.

ANDERSON, C. J., FOWLKES, JOHN GUY, AND JONES, L. F. *Study of Budgeting and Allotment of School Supplies,* University of Wisconsin. 43 pp.

This report covers the fundamental questions of Unit Allotments and Costs of Instructional Supplies and Unit Allotments and Costs of Janitorial Engineering Supplies, together with certain conclusions and recommendations. Data have been gathered from forty-three cities covering a wide range of size and well distributed as to geographical location. It was felt that these returns approximate general practices throughout the country. Cost per pupil and average daily attendance has been computed for tentative lists of supplies, grade by grade.

PALMER, GLADYS E. *Baseball for Girls and Women.* New York: A. S. Barnes and Company, 1929, x + 140 pp.

DUNCAN, MARGARET M., AND CUNDIFF, VELDA P. *Play Days for Girls and Women.* New York: A. S. Barnes and Company, 1929, xiv + 87 pp.

These books are designed as manuals for those interested in conducting sports and games for girls and women. They are not research productions but rather statements of the rules governing specific games and suggestions for handling certain sports.

MYERS, A. F., AND BIRD, O. C. *Health and Physical Education.* Garden City, New York: Doubleday, Doran and Co., Inc. 1928. viii + 342 pp.

With "health" more and more to the fore—both as a theoretical objective of education and as a subject of interest and object of activity among educators—classroom teachers are still certificated and employed with only the faintest notion of the revolution in objectives and procedures which is about to take charge of education. Elementary school teachers, especially cannot well afford to be without most of the information con-

tained in Myers and Bird's *Health and Physical Education*, but they will not obtain it in most teacher training institutions today, nor have many teachers outside of cities learned, either by training or experience, how to care for their pupils' health needs efficiently. Therefore this volume should find a ready and appreciative reading public.

The first half of Myers and Bird's volume contains the most fundamental information requisite to teach a classroom of pupils healthfully. Even the duties of janitors are listed; for rural school teachers often supervise their janitors, and the janitor is the first line of defense against disease—he becomes, in the best school program, a health teacher of great prepotency. The work of the school doctor and nurse are outlined, with suggestions for coöperation between teachers and these agents. There are chapters on first aid, nutrition, the teaching of health habits, mental hygiene, and a particularly valuable chapter on communicable diseases and their prevention.

The first part of the book closes with "a tentative outline in health education" taken from a similarly-named program published by the Cleveland Board of Education. This outline covers 46 pages and is one of the best in existence today for grades 1 to 6.

The second half of the book deals with physical education. It includes much useful material on playgrounds; on equipment; on the meaning and values of physical education; on athletics; on scoring tables, etc. The last 115 pages comprise an outline of games for each grade, with directions for conducting them.

There is nothing in this book which elementary grade teachers would have trouble either in understanding or in utilizing. Only the most elementary and practical material is included; but, so recently has the public school been concerned with health, it is doubtful whether grade teachers are at all familiar with it. This book, therefore, should fill a great need among rural school teachers and those in the smaller villages and cities; while its very moderate cost and splendid subject matter on health habits and games for grade children should repay the attention of even the more experienced city school teacher.

FREDERICK RAND ROGERS
New York State Dept. of Education

ENGELHARDT, N. L. AND ALEXANDER, CARTER. *School Finance and Business Management Problems.* New York: Bureau of Publications, Teachers College, Columbia University, 1928. 526 p.

This volume is one of a series containing problems in the various phases of public school administration. The problems of this series have been collected largely by the members of the staff and the students of the Department of Educational Administration of Teachers College, Columbia University, in the extensive survey activities of that group.

This latest volume contains 113 problems involving business and financial activities of public school systems. They cover a wide range from organization for the management of business affairs to reporting and publicity, including budgeting, accounting, the handling of school indebtedness, and many others.

The problems cover the field in a comprehensive way. In general they are clearly stated and contain a large amount of concrete material thus enabling the advanced student to approach the solutions as he would were he actually in the field. Data for their solution are given very fully. For example: one finds a checking list of business activities in one problem, and a table of bond indexes

at various rates of interest in another. The student must find practical, rather than theoretical, answers and he must know actual working conditions.

Each problem is accompanied by a carefully selected bibliography. The references are pertinent, but they are not annotated, and are made frequently to entire books or treatises rather than to the specific pages, chapters or sections of the book which bear directly on the problems under consideration.

The terminology employed and the technique followed are such that the book is adapted to advanced students who earnestly desire to go far into the subject of administration rather than to the beginning student who is not already oriented. In the hands of a thoroughly competent teacher of administration who is in sympathy with the problem method of teaching, and a group of relatively advanced students of the subject, it is an invaluable handbook of activities covering every phase ordinarily found in the field.

H. P. SMITH

Syracuse University

MANN, CARLETON HUNTER. *How Schools Use Their Time.* New York City: Teachers College, Columbia University 1928. xiii + 202 pp.

Although the element of time enters prominently into all learning situations and is one of the easiest of items to measure objectively, it has never received anything like the adequate attention that has been devoted to the element of quality. One aspect of time which has persistently thrust itself into the consciousness of public school administrators during the past decade lies in the problem of the amounts of time which should be allotted to the various elementary-school subjects. The chief motive behind this interest has been that of solving the problem of a crowded curriculum rather than that of finding the most appropriate amounts of time for the various elementary subjects, but out of the ensuing investigations and inquiry have come a number of studies which have thrown considerable light upon present-day conditions and trends in time allotments. One of the latest and most comprehensive of these studies is Mann's *How Schools Use Their Time*, which carries the subtitle, *Time Allotment Practice in 444 Cities, Including a Study of Trends from 1826 to 1926.*

Using the technique which has been developed by other students in this field, Mann has increased the scope of former investigations by including a larger and more varied array of cities, including representative groups of cities of practically all sizes. After an introductory chapter devoted to sources, methods, and definitions, the author devotes a comparatively weak chapter to trends in time allotments which does not produce anything particularly new or interesting. Chapter III, which summarizes the time requirements recommended by State authorities, is new but uninteresting. Chapter IV, which is devoted to the changing emphasis relative to the three R's, the content subjects, and the special subjects, is distinctly better; and Chapter V, which treats elementary time allotments in 444 school systems in 1926 and which includes the bulk of the text, makes a definitely worthwhile contribution. Then comes Chapter VI, which gives a good summary account of the length of school days and school years in various cities. The concluding chapter is devoted to a discussion of extreme differences in total time allotments and to a summary of the general results of the study. The book concludes with a bibliography of 32 titles and 45 pages of appendicular materials.

Mann's contribution does not seem to call for any special critical comment. It gives a satisfactory and up-to-date account of time allotments in a conventional manner and provides a useful descriptive compendium for those interested in this field. His last statement is possibly the most significant—"Above all, it is hoped that the conditions revealed by this study may serve to call the attention of the teaching and administrative personnel of our schools to the pressing need for a scientific study of the problem of carefully budgeting the time which the child spends in the grades of the elementary school."

FRED C. AYER
University of Texas

TROLAND, LEONARD T. ***The Fundamentals of Human Motivation.*** New York: D. Van Nostrand Co., Inc., 1928. xiv + 521 pp.

Based on Dr. Morton Prince's assertion that "the problem of motivation is the only important one in human life," Dr. Troland offers a volume of twenty-nine chapters in which the entire catalog of what he chooses to call human motives are inventoried. The general point of view from which Troland elects to attack the problem is that characterized as dynamic in Woodworth's sense. "It can neither be narrowly behavioristic nor strictly introspective and succeed." Consequently the author writes from, and vigorously defends, a thoroughgoing psychophysical parallelism as the only adequate basis, for him, of treating the problem of motivation. After a review of the various classical doctrines of motivation which have been offered throughout the entire history of our culture, he proceeds to an analysis of the mechanisms of the fundamental reflexes and of the various kinds of learning. Psychological hedonism is given a prominent position in Troland's treatment, and his doctrines of nociception and beneception and of retroflex action form the basis of the fundamental cortical processes underlying all human motives.

"Nociception is accompanied by a decreasing of the conductances of operating cortical adjustments; whereas beneception is accompanied by an increasing of the conductance of operating cortical adjustments. We may assign to the process which is thus described the general name: retroflex action. This term is selected because the action in question is a kind of kick-back of organic effects into the cortex. The cortex, by its principle of trial and error, or random activity, initiates a certain line of response. This in turn produces certain actual or incipient organic changes which are reported back to the cortex via the beneceptive or nociceptive channels, and the excitations of these channels modify the cortical tendency. If the report is beneceptive, or favorable, the tendency in question is enhanced, whereas if it is nociceptive, or unfavorable, the tendency is reduced. These actions can be regarded as being determined quite mechanistically, without reference to any accompanying pleasantness or unpleasantness, or any 'intelligence' on the part of the cortical process. Facilitative retroflex action based on beneception may be characterized as *positive* because it increases a given cortical conductance; while the nociceptive consequences may be characterized as *negative.*" The thalmus is the retroflex control center, and upon the basis of this principle the classical problems of learning, instinct, conditioned reflexes, attention, affection, etc., find an easy and ready solution for the author.

It is quite clear that we have in this volume a clear-cut effort to link the problem of intensity, of affective quality and

of modifiability of response in a single unitary principle which may be regarded as furnishing a fundamental substrate for all human behavior. This, of course, is a difficult and hazardous undertaking in the present state of our knowledge of the neurological mechanisms and the biochemical properties of the nervous tissue. For many psychologists conductance in the central distributing mechanism is still a dark continent, and theorizing about its fundamental properties must remain for some time to come a precarious undertaking. However, the volume presents the problem of motivation in a comprehensive and stimulating fashion. Whether the reader is in sympathy with Dr. Troland's general point of view or not, he cannot help but find the book stimulating, because it definitely focalizes the problem. There is a bibliography of 230 titles and a condensed glossary at the end of the volume.

S. RENSHAW

Ohio State University

SLAY, RONALD J. *The Development of the Teaching of Agriculture in Mississippi.* New York City: Teachers College, Columbia University, 1928. viii + 194 pp.

The table of contents so organized as to give the reader a complete picture of this historical study is an inviting first impression of this book. Further reading shows that the author has pursued a thoroughness that leaves little to be desired by the present out-of-state critic. Following an historical review of early education in agriculture a more complete purview of in-school education from the elementary and rural schools to the A. and M. College and out-of-school education ranging from boys and girls club work to various aspects of adult education in agriculture, was disclosed comprehensively and completely.

Special consideration of instruction in agriculture in the high schools disclosed a critical attitude commendable for its fairness and exactness. Credit is given where due; failures and weaknesses are revealed and remedies sought.

It is in the chapter dealing with recommendations that causes for differences of opinion arise. Here it is not made clear to the present writer just how the recommendations set forth follow from the facts presented earlier.

A few of several queries that might be raised are: Why are twenty-four weeks of observation and twelve weeks of practice recommended for the training schools? Some states make use of only ten or twelve weeks, some eighteen and others a year.

Why is it recommended that a small farm of twenty or twenty-five acres be operated as a model farm at the training school? What merit has such a public farm over the home farms of the pupils? In other states attempts beyond number have resulted in these school farms becoming the "community weed patch." What assurance is there that such a calamity will not be repeated?

If the department of agricultural education offers the courses mentioned in academic subjects, technical agriculture and professional subjects in education, just what courses are left for the remainder of the A. and M. College to offer? Such an offering of courses by a professional department is most unusual, if not entirely new, and the collegiate organization implied is not made clear in the recommendation. The recommended courses in professional subject matter do not agree with the findings in the study made by Holton. (Holton, E. L. *A Study of the Professional Training of Teachers of Vocational Agriculture.* Washington, D. C., Federal Board for Vocational Education, Bulle-

tin 122. 1927.) Just what is the justification for the professional courses recommended?

W. F. STEWART
Ohio State University

HOLLOWAY, WILLIAM J. *Participation in Curriculum Making as a Means of Supervision of Rural Schools.* New York City: Teachers College, Columbia University, Contributions to Education No. 301, 1928. 54 pp.

Coöperative curriculum construction is now coming to be recognized as a major supervisory activity in rural schools just as it is in city systems. This monograph is especially welcome because it recounts one of the first efforts of curriculum making by teachers and supervisors for the rural schools of counties.

In this study the author endeavors to establish the thesis that participation in curriculum construction by teachers in the smaller schools is an effective means of supervision. The case rests upon a body of data resulting from tests applied to teachers and pupils in five counties in Maryland in 1920 and 1921 at the time the teachers and supervisors were engaged in working out elementary courses for use in their counties. The teachers were divided into equivalent groups, experimental and control, the first working on the courses of study and the second engaged only in the usual teaching activities. Educational tests were administered to the pupils and a professional achievement test, designed by the author, was given to the teachers before and after the work on the courses of study. In addition, the change in certification standing of the teachers of both groups over a three-year period was obtained from the State Department of Education.

The results obtained from the three measures applied support the contention of the author that curriculum construction is an effective means of supervision. However, the results are not fully conclusive. The gains made by the pupils taught by the teachers of the experimental groups were small and the professional achievement test showed but little difference between the groups. There was a marked difference in favor of the experimental groups in educational advancement and professional training as evidenced by the change in the certification records.

While the evidence is not altogether convincing it does contribute to the accepted belief that course of study preparation by teachers and supervisors undoubtedly improves teachers in service and must, therefore, carry over into better classroom teaching, the ultimate purpose of supervision.

The fact that the courses of study were worked out by the teachers and supervisors without the aid of highly paid specialists is highly commendable. The teachers applied themselves seriously to a very difficult task. They examined selected courses used elsewhere; reviewed the writings of authorities in the field; and made a close study of the materials and methods of the elementary subjects. Their productions were examined critically and evaluated by a committee of competent teachers in Maryland and pronounced workable and adapted to the needs of the rural schools.

JOHN M. FOOTE
Louisiana State Dept. of Education

DEARBORN, WALTER FENNO. *Intelligence Tests.* Cambridge, Massachusetts: Houghton Mifflin Company, 1928. xxiv + 336 pp.

Another distinguished member of the intelligence-testing fraternity has undertaken to interpret the results obtained by the application of these much-discussed tools. From his own personal experiences and his study of the reports

published in this country and in England, Dr. Dearborn concludes that, although the tests have aided in the solution of certain problems, they have left some important problems wholly unsolved, and they have brought to our attention other problems of which we were previously not fully aware. He admits frankly that "the tests are by no means perfect instruments," and he seems to feel that more perfect intelligence tests would perhaps be even less useful for academic school purposes than are the tests we now have available. The author's wholesome scientific skepticism is evident on every page.

This book does not present page after page of sample test questions, nor does it describe the the various intelligence tests available and in use. There is no attempt to show the relative values of different brands of tests or to explain the statistical procedures by which such problems would be solved. There are no directions to teachers and employers on how to use the results of tests, nor even any strong recommendations that intelligence tests be used in schools and industries. For these reasons, the reviewer doubts whether the average person would greatly enjoy reading the book. Nevertheless, this is a useful volume, well worth the study of those who contemplate making any practical use of intelligence test scores, for it discusses intelligently some important issues regarding the interpretation of test results.

The author shows in his first chapters that the intelligence tests serve more effectively than do school and college marks some of the predictive functions for which such marks have frequently been used. He considers the present tests and the present school curriculum "too largely verbal and linguistic." He believes that the pupils who are below the average in intelligence but above the level of feeble-mindedness should be offered work in school that will bring them some of "the satisfactions which come with successful effort," in order that they may face the world without "the feelings of inferiority, incompetence, and even resentment," which the formal school work now required tends to produce in them.

In short, Dearborn has examined the results of intelligence tests without some of the preconceived prejudices which have occasionally been evident in writings in this field. He discusses the evidence in the case of nature vs. nurture, but finds that it is not yet conclusively in favor of either. In considering the question as to whether criminals and dependents are the product of low intelligence or of unsatisfactory social conditions, he also finds conflicting evidence and tends toward the conclusion that in any particular case both factors may have been operative. It is pleasing to find such attitudes toward his work in one who has done so much to develop the science of mental measurement.

M. R. TRABUE
University of North Carolina

LEVINE, ALBERT J., AND MARKS, LOUIS. *Testing Intelligence and Achievement*, New York: The Macmillan Company, 1928. viii + 399 pp.

For a long time we have needed a book giving a complete and rapid survey of the psychological and educational backgrounds upon which the testing movement rests. Many authors have catalogued tests and given enough of statistical method for their interpretation. The reviewer is not familiar with any book which summarizes adequately and concisely the bearings of the various schools of psychological thought, the influence on non-intelligence traits of personality and

the basic fundamental assumptions and divisions of achievement tests in the light of the most recent contributions in the field. This, in the judgment of the reviewer, is the major contribution of this book. The authors have presented in a concise, scholarly manner the wider reaches of the subject and have brought together a multiplicity of remote factors which have a bearing on the problem. They have discussed at length the stuff out of which educational and psychological tests are made. The arrangement and classification are logical and basic in the sense that the authors have attempted to build into the structure all the elemental factors as far as they are known.

The first five chapters deal with psychology and the measurement of intelligence. The historical background leading up to modern testing activities is divided in four phases, the social and psychological qualitative, the psychological quantitative, and the biological qualitative. Following these are approximately sixty pages dealing with an analysis of personality discussed from the standpoint of the innate self, the acquired self and the directing self. The effects of the physical phases of the body on personality such as glands, conducting organs, response organs, etc., are discussed along with the psychological innate equipment such as emotions, instincts, conditioned emotional responses, attitudes, the laws of learning, etc. Explanations and interpretations are given in terms of several schools of psychological thought such as that of the Gestaltists, the Behaviorists, and so on. The other chapters on intelligence testing discuss (a) Intelligence: What it is and how it is Measured, (b) The Representative Individual Scales and Tests, and (c) Group Tests of Intelligence.

The last five chapters discuss respectively (a) Achievement Tests and Scales (b) Testing Non-Intelligence Traits of Personality (c) The Mental Defective (d) The Neurotic and (e) The Superior Child. Following these are ten pages of statistical symbols, terms, and formulae in educational measurements. In these chapters as in the first five, the authors have presented the more remote factors which have a bearing on the subject as well as those which have a direct bearing. The discussions are as fundamental and complete as can be made considering the brevity of the text.

On the whole, the book is an admirable attempt to bring together the basic fundamental conceptions underlying the measurement of intelligence and school achievements. The only weakness, if indeed it may be called a weakness, is the lack of statistical method for the further interpretation of tests and scales. The authors, no doubt, have assumed that this information will be secured elsewhere.

C. A. Gregory
University of Cincinnati

Fontaine, E. Clarke. *Ways to Better Teaching in the Secondary School.* Boston: Ginn and Company, 1928. xi + 271 pp.

The reviewer recently asked a graduate student to explain what procedure she would first employ in preparing a forthcoming Master's thesis. "Oh," said she, "I am just going to write, and write, and write!" Similarly, in overwhelming numbers, teachers who are caught in the maze of things just teach, and teach, and teach! Now Fontaine's book is a protest against this sort of thing. In it he not only protests but happily points a very sane and practicable way out. He proceeds by citing examples of teaching, fresh from the classroom, both good and bad, and frankly

explains why he thinks they are good or bad. From this point he moves on to the presentation of a modified form of teaching procedure. He makes insistent use of the term *forward-looking* in contrast with *backward-looking* recitations, and thereby convinces the reader of his impatience with too frequently looking backward, even as far as yesterday's assignment. The author shows how he would apply his ideas of teaching to the subjects of Latin, French, science, mathematics, history, English literature, and problems of American democracy. In this manner he not only reveals what, in his judgment, is wrong with a great deal of teaching, but also sets up remedial procedures. If one were to attempt to characterize the latter, the expression "the humanization of secondary instruction" would be an appropriate term to employ.

The final chapter, which is set up under the caption *Aims and Devices*, is especially good. It rounds out the author's treatment of his subject in splendid fashion. Taken by and large, the book merits a great deal of attention by supervisors and teachers alike in the secondary field. HARLAN C. KOCH
University of Nebraska

REEDER, WARD G. *The Business Administration of a School System.* New York: Ginn and Company, 1929. x + 454 pp.

In these days when mounting costs of education are precipitating heated discussions of high taxes and wasteful spending, it is a pleasure to welcome a book which stresses the need for a more efficient handling of all phases of school business. The title, however, is rather unfortunate. There is no business administration of a school system aside from educational functions. The author does stress the need for a unit type of school organization. A man from Ohio could hardly do otherwise after living in the midst of frequent administrative inefficiency growing out of the double-headed and even three-headed executive organizations found in that state. Greater stress, however, should have been given to the fact that everything in a school system should be placed on a functional basis.

The Business Administration of a School System is for the most part a collection of valuable material. The organization and presentation are clear and concise. The book is readable and usable, and will doubtless find a useful place in schools of education, as well as in professional libraries of superintendents and board members. However, the writer has been more modest in expressing his opinions than might be considered necessary.

Two reasons occur to one in explanation of the author's reserve. First, this book is an outgrowth of the course, "Business Administration of Schools," in which the instructor apparently follows the plan of having many sides of a question presented. The students are expected to think, to analyse the data presented, and to draw their own conclusions.

The second apparent reason for the absence of directly stated opinion is the realization that practices and opinions gleaned from men on the firing line of disturbed educational frontiers are more apt to carry weight than are arm chair opinions from college halls. When discussing school organization, instead of stating directly his own opinion, the author says, "If space permitted, many other reports of school surveys might be quoted and all would argue for the desirability of having a unified executive control."

Another valuable phase of the book for the school administrator is the re-

production of many usable forms for school budgets, accounts, contracts, efficient use of school buildings, presenting school data to the public, accounting for school supplies, school pay-roll procedure, and the like. In producing *The Business Administration of a School System*, Dr. Reeder has rendered school administrators a valuable service.

GEORGE E. CARROTHERS
University of Michigan

FOOTE, J. WESLEY. *Directed Civics Study, A Student's Workbook in Civics.* Yonkers-on-Hudson, New York: World Book Company, 1928. vi + 154 pp.

Most educators are now agreed that education in citizenship can no longer be successfully carried on if the material used is limited to that provided in a textbook, no matter how excellent the textbook may be. The appearance of a number of supplementary volumes, charts, and civics manuals is, therefore, an encouraging sign. During the last two years not less than nine civic workbooks or manuals have come from the press and others are in process of preparation.

The volume under review, according to the preface, is intended to "provide interesting topics and problems in the form of study units and exercises" to guide pupils in "acquiring necessary facts and in making the judgments essential to good citizenship" (p. iv). The topics treated include Community Life, Public Health, Public Safety, Public Education, Public Recreation, Community Planning and Civic Beauty, Transportation and Communication, Economic and Industrial Problems, Training and Caring for the Handicapped, The Citizen and the Law, Our National Government, State and Local Governments, Elections and Political Parties, and Financing the Government. At the beginning of each of the foregoing divisions stands an "assignment" of citations to textbooks and, in addition, an "assignment for advanced study," consisting of references to a number of supplementary works. Then follow a series of exercises which pupils are to work out, most of which are based at least in part on the readings cited.

Few students of civic education will question the value of a manual as an aid to civic training. In the work under consideration, however, objection may well be made to the disproportionate number of "book" exercises and the relative shortage of exercises requiring personal investigation and direct contact with community activities and agencies. Undue space seems to have been allotted also to the informational or factual side of community life and too little attention to the interpretative or illuminative aspects. Viewed as a whole the publication has merit and is worthy of examination by persons interested in or responsible for the civic education of youth.

HOWARD C. HILL
University of Chicago

BASSETT, SARAH JANET. *Retention of History in the Sixth, Seventh and Eighth Grades with Special Reference to the Factors that Influence Retention.* No. 12 of the Johns Hopkins University Studies in Education. Baltimore: The Johns Hopkins Press, 1928. viii + 110 pp.

This study was made during the years 1926-1928 in partial fulfillment of the requirements for a Ph.D. degree at Johns Hopkins University. It represents the results of the testing of 1364 children of grades six, seven and eight in five public schools in different sections of the city of Baltimore. These children were instructed by twelve different teachers in

the regular course in history offered by the public schools of Baltimore, and the testing was confined to the field of history. Especially prepared tests were administered at the close of each semester in which instruction was given and at intervals of four, eight, twelve and sixteen months. Every precaution offered by modern educational procedure seems to have been employed in order to make the tests representative of normal conditions and in every way valid.

Unlike some fact finding investigations, this study attempts to determine "some of the practical applications of these findings to (a) life of the school, (b) methods of teaching, learning and pupil participation, and (c) the school studies, or curriculum." There may be some difference of opinion as to the application of these findings but in general they seem to be cautiously expressed and based strictly upon the facts brought out by the investigation. These general conclusions make the study of great value to all teachers of history. Most teachers will be glad to find that certain conclusions established by common experience in teaching history are confirmed by the scientific procedure employed in this study.

The study, however, has a wider application and will be welcomed as a contribution to our knowledge of the retention of school learning. A valuable part of this publication to students of education is the historical survey of the literature on retention contained in Chapter VIII and the annotated bibliography on retention. These are extremely valuable for reference as a summary of the investigation of the subject of retention up to the present date.

On the whole this is an extremely creditable contribution and is worthy of study not only by teachers of history but by all teachers who are interested in the important problem of how instruction can be improved in order to insure greater retention by pupils.

EDWARD P. SMITH
New York State Dept. of Education

HECK, ARCH O. *Administration of Pupil Personnel.* Boston: Ginn and Company, 1929. xx + 479 pp.

There has recently been a revival of interest in the problems of the administration of Child Accounting, with a large measure of emphasis being placed on the need for greater *uniformity* in school record systems and forms. In this most recent treatment of the subject, Dr. Heck has presented a discussion which should be very helpful to classroom teachers, the group to which the book is particularly addressed.

It is the belief of the author that every teacher and prospective teacher should study and understand certain basic principles of Child Accounting method. In this he is doubtless right. It would seem, however, that if this is to be accomplished the teacher should be brought into direct contact with an actual child accounting system of which there are several in existence at the present time. In spite of a number of excellent chapters on major problems of child accounting the book apparently does not present a complete systematic child accounting program aimed at the development of uniformity of records and accounting methods on a large unit basis. Presumably this detailed and systematic program is presented elsewhere.

The author presents some very good examples of desirable record forms as well as some excellent summaries of data on pupil progress, pupil failures, school marks, and pupil classification. It is noticeable, however, that two of the larger state-wide studies of pupil progress as well as a comprehensive study of the school census and a program for its ad-

ministration are given no mention in the book. On the whole the book is a timely and useful treatment of a phase of school administration which merits more specific attention in the training of teachers than it has been receiving generally.

H. A. GREENE

University of Iowa

CHADBOURNE, AVA H. *The Beginnings of Education in Maine.* New York City: Teachers College, Columbia University, 1928. vi + 135 pp.

A painstaking, very readable study of education in Maine from the early Colonial period until the separation from Massachusetts in 1820.

Several factors, economic, religious, and social, prevented the early development of schools, even after Maine came under the well-organized school laws of Massachusetts. York was the first town in the Maine district to establish schools. In the first recorded action of 1701, the town authorized the selectmen to secure a school master, the records showing that these officials, "Indented and Bargened with Mr. Nath'll Freeman to Ceep a free school for all the Inhabitants of our Town of York."

By 1785 there were 42 towns established in Maine. The author traces the history of school support in these towns painstakingly. While the records are incomplete, sometimes lacking, there is plenty of evidence of support by a town rate supplemented by a tuition tax or a general tax.

Development follows in general the same steps taken by the Mother colony; first, the moving school, then the precinct or parish, and thirdly, the district. By 1820, when Maine passed out of the control of Massachusetts, the district system was in use in all of the towns.

In the second period, 1785 to 1820, the form of control most frequently found is the special or the general school committee, though in the newer towns there was still some tendency to utilize the three agencies which had been employed in Massachusetts—the town meeting, the selectmen, and the school committee.

In many towns private schools were established before it was possible to support education by public taxes. As a rule, these schools were not wholly private ventures, but the master or mistress would be paid in part by contributions and subscriptions.

The author finds that prior to the Revolutionary War nine towns had established grammar schools, one—Portland—continuing such a school until 1820, but after the war few records of grammar schools appear, the Academy—the first one, Hallowell, established in 1791—taking the place of the older institution. Twenty-five academies were founded in the Maine district before 1820. Three of these were for girls and to some of the others girls were admitted.

A chapter is devoted to the private education of girls in Maine from 1785 to 1820, the sources being newspapers of the time and local histories of towns and counties. With the rise of the Academy, the private schools tended to disappear. Apparently by the end of the period, 1820, most of the Maine academies either received girls upon the same basis as boys, or had established separate departments for girls.

The author has given the most complete record of early education in Maine thus far attempted. Files of 17 newspapers, beginning with the *Falmouth Gazette* and *Weekly Advertiser*, Portland (1785), were consulted. A careful survey was made of town records, town histories, and general histories of Maine.

FOREST C. ENSIGN

State University of Iowa

COCKING, WALTER D. *Administrative Procedures in Curriculum Making for Public Schools.* New York City: Teachers College, Columbia University, 1928. vi + 120 pp.

The purpose of this study is threefold. It contains "an analysis of the principles underlying curriculum making, especially those having to do with the instituting and carrying on of the actual program." In addition to this there is "an analysis of the administrative procedures used by twelve cities in their curriculum programs." The study also aims to give "a critical review of administrative procedure so far used with the aim of establishing certain basic principles which may be used by those planning programs of curriculum-making in public schools." "The conclusions which are drawn are therefore based upon the complete procedures which these cities have found wise in actual practice and which are in accord with sound administrative principles."

The foregoing statements may be taken as illustrative of the very clear-cut and definite character of the study as a whole. The book is readable and will prove of great value to all those who are concerned with the present administrative features of a curriculum program.

In spite of its good points however, the book leaves the careful reader with a feeling of disappointment in several places. The historical section will serve as one case in point. The organization of this portion of the study is open to criticism. There is considerable overlapping of subheads. When explaining the influence of European schools on our curriculum there is no mention of Pestalozzi or of the great inspiration which came to us from Europe during the first half of the nineteenth century. This material is referred to rather briefly under two other subheads. Under the heading "The Development of the Scientific Method" the treatment begins with Thorndike. Francis Bacon, Newton and Comenius are not mentioned at all. Apparently the author has felt the influence of a current tendency to ignore the past. All notions of education as discipline are carefully avoided.

The author's critical review of administrative procedures so far used will pass muster if we emphasize the phrase "so far used." Every student, of course, has a perfect right to limit his study in any way that he chooses, and Dr. Cocking must not be censured for thus limiting his study. In spite of all this, the reviewer was a bit disappointed in failing to find any suggestion at all concerning what we should do next in curriculum making. The present curriculum movement has lived a good and valuable life, but it now presents unmistakable symptoms of anemia. It would have been very satisfying if the present study could have prescribed some remedy for the patient, or at least expressed hope as to ultimate recovery.

In spite of all this, Dr. Cocking has done an excellent job at studying curriculum procedures as they now are. His study will undoubtedly have a wide reading among all students of the administration of the curriculum.

W. J. OSBURN
Ohio State University

JONES, JANE LOUISE. *A Personnel Study of Women Deans in Colleges and Universities.* New York City: Teachers College, Columbia University, 1928. 155 pp.

This book is made by the intelligent study of two preliminary questionnaires, twenty-four individual interviews, three hundred and ninety-four vocational histories, twenty further questionnaires to

deans in institutions approved by the American Association of University Women and two time-studies of deans. One of the two initial questionnaires was sent in 1925 to the presidents of all colleges listed in the Educational Directory, Department of Interior, of that year and having women enrolled. The second was sent in 1926 to the registrars of the same colleges asking for total enrollment of men and women in the spring session. For the purposes of this study, Dr. Jones defines as a "dean" or "dean of women": (pp. 13)

1. The person who in the mind of the president obviously fitted the description whatever her title might be.

2. The dean, in case the president mentioned both a dean and an associate dean.

3. The dean, in case the president stated that the interests of women students were looked after by an academic dean and by other persons such as a vocational director, social director, or student counselor.

4. The academic dean, in case the president mentioned both academic dean and "dean of residence." If the person mentioned was a dean of residence, she was included.

These four variations of women deans carry seventeen different titles, beginning with "Adviser" and ending with "Warden", and there are six of the three hundred and ninety-four considered whose title is omitted.

The duties of women deans and those toward which they should have a research and constantly creative attitude are well classified by Dr. Jones as follows: (pp. 116-117)

1. Counsel on personal problem of students.

2. Coöperation with student governments.

3. Organization and oversight of extra-curricular activities.

4. Oversight of academic progress of students.

5. Handling of cases of bad behavior.

6. Organization housing and responsibility for it.

7. Coöperation with religious forces of the community.

8. Organization and direction of part-time employment of students.

9. Coördination of interests of women in relation to policies of the institution.

10. Interpretation of college policies to the public.

Dr. Jones' study is by far the best that has appeared up to this time. It is a recognition of the fact that this work has become an actual profession for women, with certain specified qualifications in the way of liberal and professional training. The women themselves, also, like men and women in other types of professions, are rapidly evolving distinct ethical codes. Dr. Jones is able to describe specifics in their duties and spends very little time, to quote her freely, letting her fancy play in describing a paragon in whom all the gifts and graces ever found in womankind are combined with the virtues commonly thought of as masculine. The two college presidents who spoke at the 1929 meeting of the Deans of Women, should have read it before they made their somewhat naïve utterances about women deans.

ESTHER ALLEN GAW
Ohio State University

SAYLES, MARY BUELL. *The Problem Child at Home.* New York, The Commonwealth Fund, 1928. x + 342 pp.

This is the latest of the studies published by the Commonwealth Fund, and is by all means the best and most carefully prepared of the series. The case study method is used throughout, the cases

being selected with great insight, and presented with analytical skill. This work differs from other previous publications using a similar method in that the case study is always an integral part of each problem discussed. It is neither the major presentation, from which theories or principles are deduced as a secondary consideration; nor is the case presented merely to illustrate and illuminate the pages of a didactic discussion. Indeed, I consider that the author handles case studies in relation to the total analysis of human conduct and the institution of the family in such a masterly manner as to produce a classic, a model for future authors.

Part One deals with "Educational Satisfactions Which Parents and Children Seek in One Another." The six chapters in this part discuss the educational needs of the child, satisfaction of normal parental love, of exaggerated parental love, of parental ideals, and of the impulse to dominate. It concludes with a fine chapter on favoritisms, antagonisms, and jealousies within the family.

Part Two is entitled, "Mistaken Ideas Which Influence Parent-Child Relationships." The chapters take up ideas regarding child nature, sex development, discipline, and heredity.

Part Three has twelve fully developed case studies as types of problems—a method so happily used by Hexter and Druelich in *Children Astray*, and less successfully (even though more academic) in the Judge Baker Foundation Studies.

The book is well written, but it is not precisely light reading. However, it should be of great value to every intelligent person who has any responsibility for the care of children. Written definitely from the standpoint of a clinical psychologist whose attitude is that of a social worker and sociologist, the book is from front cover to back about children presenting behavior problems sufficiently serious to be brought to a clinic. Yet nowhere in the book is there a suggestion that either children or parents are abnormal. Indeed, the human beings who live for a little while in its pages and bare their secret souls under the skillful surgery of the analyst are normal people—ourselves as parents, ourselves when we were children, potentially or possibly our own children sitting about our library table as we read. If there is apparent any lack at all, it is the lack of pedagogic suggestions as to "what to do about it." For the most part, the impartial and candid disclosure of facts offers its own suggestion for treatment, with some almost casual description of what went on during the time the clinic was in touch with the child. Since this restraint was consistent throughout, it appears to be intentional, and accounts for the sense of classic economy in presentation, as well as for the demand upon the reader's intelligence.

These case studies may present no new facts, but the dispassionate yet sympathetic analyses are a contribution to our parental education of first significance. The chapter on problems arising when parents are seeking to realize their ideals in their children, and the one on mistaken ideas regarding sex are especially significant, and bring together in accessible form the best reflective thinking of the present day. Let me recommend this book to mothers, teachers, sociologists, and welfare workers, as a book to own, to read, to digest.

JESSIE A. CHARTERS
Ohio State University

RESEARCH ABSTRACTS and BIBLIOGRAPHIES

Address all communications relative to research abstracts and bibliographies to Editor A. S. Barr, University of Wisconsin, Madison, Wisconsin.

CLARK, HAROLD F. "Index Numbers in School Administration," *Bulletin of the School of Education*, Bloomington, Indiana, Indiana University, 1927.

The purpose of this bulletin is to suggest ways in which index numbers may be used in educational administration. The bulletin contains a discussion\of an index of the prices of school bonds, an index of the prices of school buildings, and an index of the prices of school supplies.

"Character Building: Principles and Suggested Procedures," *Kansas City School Service Bulletin*. Kansas City, Missouri, Kansas City Public Schools, 1929.

The bulletin is the work of a committee of Kansas City teachers, principals, and supervisors dealing with the problem of objectives, psychological principles, procedures, and means of measurement in the field of character education.

MARBERRY, J. O. "Extension Teaching in the University of Texas as Viewed by the Student," *University of Texas Bulletin*, Austin, Texas, University of Texas, 1929.

A questionnaire study of the reactions of 627 individuals to extension courses of the University of Texas. The body of the bulletin contains numerous tables presenting the facts with reference to various aspects of extension work. The findings and conclusions are too numerous to summarize here.

REEVES, FLOYD W. AND RUSSELL, JOHN DALE. "Some Aspects of Current Efforts to Improve College Instruction," *Bulletin of the Bureau of School Service*, Lexington, Kentucky, University of Kentucky, 1928.

The following problems are discussed: The use of intelligence tests, the prediction of scholastic success, selective admissions of students, the classification of students into ability groups for instructional purposes, the relation of class size to the effectiveness of instruction, the measurement of results of instruction, diagnosis, remedial instruction, and educational guidance.

"Salary Scales in City School Systems, 1928-29," *Research Bulletin of the National Education Association*. Washington, D. C., National Education Association. VII (May, 1929).

A summary of salaries paid to teachers, principals, supervisors, and various administrative officials for the school year 1928-1929.

"Studies in Adult Education." *Educational Research Bulletin*, Columbus, Ohio, Ohio State University, VIII (May, 1929).

This bulletin is concerned with the problems of adult education, parent education, study group service, child clinics, experimental projects, etc.

"Topical Analysis of 234 School Surveys," *Bulletin of the School of Education*, Bloomington, Indiana, Indiana University, 1927.

Each of the 234 surveys analyzed gives a number and the materials contained therein indexed under fifteen major headings and a great number of minor headings. A very serviceable bulletin.

WIESE, DR. HELMUT. "The Delinquent: An Educational Investigation," *Der Fursorgezogling.* Eine erziehungswissenschaftliche Untersuchung. Publisher: Halle (Saale), Germany, Carl Marhold Verlagsbuchhandlung, 1928.

The author finds three fundamental errors in the treatment of delinquents: first, judgments about delinquents contain mostly only accusations, never excuses. The isolated and concentrated presentation of misdeeds of a delinquent pictures him as onesided and therefore wrong. Second, evaluations of the delinquent on account of such onesided presentations lead to grave errors of interpretation. Third, conclusions based upon documentary records of the behavior of delinquents taken out of their natural setting may lead to doubtful interpretations. Delinquency is not a single trait, but results from a total personality. The author stresses the importance of seeing the delinquents as a whole.

EXPERIMENTAL STUDIES REPORTED IN CURRENT ISSUES OF OTHER MAGAZINES

EDUCATIONAL ADMINISTRATION AND SUPERVISION

ALLTUCKER, MARGARET M. "The Tenure in Present Positions and Training of City School Superintendents," *School and Society,* XXIX (May 18, 1929), 649-652.

The median tenure of superintendents of city schools in their present positions is seven years. One city superintendent has held his present position for fifty years. Of fifty-eight superintendents of schools in cities of 100,000 in population, twenty-three or forty percent have doctor's degrees.

GRANT, ALBERT AND COWLEY, W. H. "A Technique for Analyzing the Supply and Demand of Educational Workers," *School and Society,* XXIX (May 11, 1929), 618-620.

The purpose of this study is to illustrate a technique for the analysis of supply and demand in educational workers. The procedure consists chiefly in comparing data which represent an institution's yearly output of educational workers with data which represent the vacancies reported to the institution during the same period. The relation between supply and demand is expressed in a ratio whose reliability depends upon the size of the numbers involved. The study is based upon data taken from the records of the Department of Vocational Guidance and Placement of the University of Chicago.

HART, F. W. AND PETERSON, L. H. "Teachers Salaries in San Francisco," *The San Francisco Teachers Consolidated Salary Study Committee,* San Francisco, California, 1929.

A report of the several investigations bearing upon the establishment of a salary scale for the San Francisco Public Schools. This bulletin contains data on the salaries of teachers in San Francisco in relation to changes in purchasing power, 1914-1928. A comparison of the salaries paid in San Francisco with twenty of the largest states in the United States, the professional and economic status of San Francisco teachers, basic principles and fundamental considera-

tions in the fixing of teachers' salaries, and the professional salary scale recommended for San Francisco teachers.

McGAUGHY, JAMES R. "The Movement Toward Scientific Salary Schedules," *Teachers College Record*, XXX (May, 1929), 752-759.

Three plans, namely, the New York City plan, the Pittsburg plan, the San Francisco plan are outlined as representative of some recent attempts at scientific schedule making. It is pointed out that while these three plans differ in some important essentials, there is a likeness among them. Continued professional training is required. No maximum salary is reached until after ten or twelve years of teaching experience. Equal pay for men and women is incorporated in all of them, but is mandatory because of state laws or regulations. The writer believes that while men are not better teachers than women, that the law of supply and demand makes it necessary to pay men higher salaries.

REAVIS, WILLIAM C. "Items of Information Collected by Departments of Public Instruction of Ten Representative States," *Elementary School Journal*, XXIX (May, 1929), 666-673.

The author points out the fact that at present no single item of information is collected by all of ten representative state departments of public instruction. The information collected by the different states varies widely. The reorganization and standardization of information forms for the collection of statistics by state departments is needed.

PSYCHOLOGY OF LEARNING

PATTERSON, DONALD G. AND TINKER, MILES A. "Studies of Typographical Factors Influencing Speed of Reading," *The Journal of Applied Psychology*, VIII (April, 1929), 120-130.

The experiment continues previous studies of the author of the mechanical factors influencing speed of reading. One mechanical factor at a time is varied. Adequate controls of practice effect, length of texts, number of subjects, and comprehension are provided. Texts in 6, 8, 12 or 14 point type were read slower than texts in 10 point type.

WASHBURNE, JOHN N. "The Use of Questions in Social Science Material," *The Journal of Educational Psychology*, XX (May, 1929), 321-359.

A study of the use of questions in social science reading materials. The author found that the inclusion of questions resulted in an important and reliable difference in recall and understanding of historical materials. The best placement for questions was found to be at the beginning of the history. The worst placement of questions was found to be at the end of the history. Preview questions calling for generalizations resulted in an improvement in generalizing which spread to facts not covered by such questions.

CURRICULUM RESEARCH

CHARTERS, W. W. "The Technique of Determining Content of Student Teaching Courses," *Educational Administration and Supervision*, XV (May, 1929), 343-349.

A brief statement of the Charter's job-analysis technique applied to student teaching courses.

PEIK, W. E. "The Relative Professional Training Value To Beginning Secondary Teachers of Certain Types of Content in Education," *Educational Administration and Supervision*, XV (May, 1929), 321-333.

A report of one phase of an extensive investigation at the University of Minnesota to determine the value of the un-

dergraduate training program in education.

EDUCATIONAL TESTS AND MEASUREMENTS

BROOM, EUSTACE. "The Validity of Four Individual Tests of Mental Ability," *Educational Research Bulletin*, Los Angeles City Schools, VIII (March, 1929), 9-10.

A study of the validity of the following tests: (1) The Kohs Block Design Test; (2) The Porteus Maze Test; (3) the Herring Revision of the Binet-Simon Tests; and (4) the Stanford Revision of the Binet-Simon Tests.

CARMICHAEL, A. M. "Moral Judgments of First-Grade Children and a Method of Securing Them," *Elementary School Journal*, XXIX (May, 1929), 681-690.

This article gives the results of a test of moral judgments for first-grade children and suggests a new method of securing them.

DOUGLASS, HARL R. AND COZENS, FREDERICK W. "On Formula for Estimating the Reliability of Test Batteries," *Journal of Educational Psychology*, XX (May, 1929), 369-377.

A technical discussion of the establishment of the reliability of test batteries.

LEWERENZ, ALFRED S. "The Measurement of the Difficulty of Reading Materials," *Educational Research Bulletin*, Los Angeles City Schools, VIII (March, 1929), 11-14.

A review of different methods used in determining the difficulty of reading materials with an experimental study of the Vogel-Washburne formula.

SCHUTTE, T. H. "A Study of Diction Consciousness of College Freshmen," *Peabody Journal of Education*, VI (March, 1929), 289-293.

A report of the use of the Schutte Diction Test with 150 college freshmen women.

THURSTONE, L. L. "Theory of Attitude Measurement," *Psychological Review*, XXXVI (May, 1929), 222-241.

A technical discussion of a new method of measuring attitudes. The method proposed is to take the place of correlational procedures which are inadequate for such measurement.

WALKER, HELEN M., ET AL. "The Sampling Problem in Educational Research," *Teachers College Record*, XXX (May, 1929), 760-774.

The manner in which a sampling is to be chosen is a practical problem of great importance to every person interested in the conduct of educational research. Miss Walker discusses the various conditions pertaining to sampling and lays down three criteria for the selection of samples. The greater part of the article is given over to a long list of illustrations of violations of these criteria of sampling.

INTELLIGENCE TESTING

MCANULTY, ELLEN ALICE. "Distribution of Intelligence in the Los Angeles Elementary Schools," *Educational Research Bulletin*, Los Angeles City Schools, VIII (March, 1929), 6-8.

A report of the Division of Psychology and Educational Research giving the distribution of intelligence scores for pupils in the Los Angeles Elementary Schools.

MISCELLANEOUS

BUSWELL, GUY T. "Summary of Arithmetic Investigations (1928). I," *Elementary School Journal*, XXIX (May, 1929), 691-698.

Since 1925 the author has prepared an annual summary of the published investi-

gations relating to arithmetic. This is the summary for 1928.

COLLINS, E. A. "Contributions to Educational Periodicals," *Peabody Journal of Education*, VI (March, 1929), 278-281.

An analysis of 3,368 articles published in six of the leading educational magazines for the years 1920-1926. The outstanding fact seems to be the large number of contributions from universities, and the exceedingly small number from teachers colleges and normal schools.

REAVIS, WILLIAM C. "Secondary Education as a Field for Research." *Educational Research Bulletin*, Los Angeles City Schools, VIII (March, 1929), 2-5.

A discussion of some of the problems in special need of investigation in the field of secondary education with a review of current studies of these problems. A helpful and suggestive article.

REMMERS, H. H. "The Measurement of Interest Differences Between Students of Engineering and of Agriculture," *The Journal of Applied Psychology*, VIII (April, 1929), 105-119.

A discussion of a differentiated diagnostic test for measuring interest of students of agriculture and engineering built around statistically significant items of likes and dislikes. The test is shown to have high reliability.

NEWS and COMMUNICATIONS

Address all research news and communications to Editor Earl Hudelson, College of Education, University of Minnesota, Minneapolis, Minnesota.

For several years classes have been maintained in the elementary and junior high schools of Oakland, California, for those students who, for various reasons, do not fit into the standard classes. When compulsory education raised the limit to eighteen years, these students had to be taken care of in special classes. It was soon discovered that the work in these classes consisted of about the same subject matter as in the college preparatory courses, but given more slowly and in a manner less rich in detail. Each department of the school which had such classes conducted them independent of the other departments, and there was no coördination between them.

The Non-Collegiate Division was started in August, 1928. In January, 1929, courses were being given in English, mathematics, world history, United States history, economic geography, science, general language, and Spanish. None of these courses were of the diluted form, but were developed into something entirely new. The meetings of the teachers of this division were seminars, in which the problem as a whole was considered, and the teachers were instructed to break away from the traditional in order to establish effective solutions. The results of all the experiments have been preserved and the gains of one year will serve as foundations for the experiments of the next.

In preparing the courses the teachers were instructed, according to Mr. Percy E. Rowell, Head, Non-Collegiate Division, to keep in mind the following objectives: immediate usefulness; social adaptation; business availability; application to local conditions; preparation for every-day life; to teach current events, whether in mathematics, English, science, geography, or history; to make use of a rich content, rather than to dilute it; to give a large variety of topics in order to take care of a quickly changing interest; to make use of the desire for repetition of mechanical processes; to use drawing as a means of expression; to strive for oral expression more than for written work; and, finally, to strive for continuous growth and not for a continuous advance in subject matter.

Students may take only one subject in this division or they may take two, three, or four subjects, according to their ability or desires, upon the advice of their counselors. Any student who shows power may be transferred from the non-collegiate courses to the college preparatory courses. The door is always open. Actually, however, the courses in this division are proving so attractive that the movement is toward them rather than away from them.

The Report of the Committee on Salaries, Insurance, and Annuities of the American Library Association, presented by Charles H. Compton, assistant librarian of the Public Library, St. Louis,

Missouri, at the meeting of the Council of the Association on May 13, recommended the establishment by the Association of a research or statistical bureau for the compiling and publication of statistical studies in personnel and other problems of library administration.

The Report reveals that the typical library assistant of today is a woman with two years of college education and professional library training, and after eight years of library experience is receiving $1,597.00 a year which in pre-war prices is equal to $934.00. These figures are based upon replies to a questionnaire from 685 library assistants in 98 public, university, and college libraries in the United States. Of the 685 there are 327 college graduates and 339 library-school graduates. The average budget of this typical library assistant is: board and room, $654; clothing, $281; laundry and dry cleaning, $42; health, $45; carfare, $52; recreation, including vacation, $96; books, magazines, theaters, and music, $47; benevolences, $55; savings, $186; life and accident insurance, $59; all other, $127. The individual items amount to $1,644, slightly more than the average salary; but this accounted for by the fact that 141 have an average income of $324 in addition to salary.

Another noteworthy achievement in the long and productive research record of Dr. Cornman, Dr. Boyer, and others in Philadelphia has recently appeared. It is the report of a meticulous experimental study in District 2 of the Philadelphia Public School System to secure objective standards of written composition in Grades 3B to 8B inclusive. The experiment was conducted by Dr. Samuel Berman. The report is published by Temple University, Philadelphia.

Seven thousand five hundred children wrote compositions in ten representative schools; 185 teachers submitted 1070 representative themes; these were then given a total of 10,700 judgment scores; 220 of these papers were selected by multiple teacher-judgment for further sifting; and, finally, these were checked by ten experts with the use of a standardized composition scale. From this three-fold selecting process emerged 101 representative compositions. Dr. Berman has arranged and published them as samples of Excellent, Good, Fair, Poor, and Very Poor writing for each grade, 3B to 8B inclusive, together with statements of the positive and negative qualities of each sample.

Beyond the inherent excellence of the study, these tentative standards possess the merits of being local and of being consonant with the aims and content proposed in the Philadelphia Course of Study in English.

The recent Annual Report of Superintendent John A. Sexson of Pasadena, California, is of particular interest in that it contains an account of Pasadena's initial experience with the 6-4-4 plan of organization. The Report also shows that the cost per pupil in average daily attendance in the Pasadena schools is lower than it has been at any time since the peak in 1922-1924. From 1925-1928 the cost per pupil in average daily attendance has dropped 26 percent.

In an address entitled "Contributions of Research to Business" Mr. Edward A. Filene of Boston declares "because modern business must give preference to the college and university-bred man trained in scientific method, successful business will be obliged to help and support education to a degree undreamt of until now." It is estimated, according to Mr. Filene, that American business spends more than $200,000,000 a year on re-

search—$70,000,000 through the government and $130,000,000 through commercial firms. Of the large corporations which spend millions of dollars a year on scientific investigations, probably the American Telephone and Telegraph Company spends the greatest amount. Its appropriation for research in 1929 amounts to $15,000,000. In contrast, $50,000 has been appropriated to the Bureau of Education to begin its national investigation of secondary education! The total appropriation of the Bureau of Education is less than $300,000.

Defensibility of Certain Abridgments of the Stanford Achievement Examination[1]

It is a common practice among clinical psychologists to employ some one of the various abridgments of the Stanford-Binet examination as a time saving device. Experience shows that there is no very considerable error introduced by this practice, but the lack of definite evidence concerning the exact amount of error thus incurred is rather astonishing.

This brief paper reports some evidence gathered from the records of psychometric examinations given in the Psychological Clinic of the State University of Iowa. It is the practice in that clinic to give the entire Stanford-Binet examination without any abridgment whatever save the omission of the second column of words in the vocabulary test. The data contained in the record booklets for examinations thus given are exactly the sort needed to study the amount of inconsistency between the complete and the abbreviated form of the examination.

Because of the fact that a clinic population is limited, for the most part, to the lower ranges of talent the data presented do not represent a normal distribution of ability. This fact in no way invalidates the statistical procedures employed.

The data were treated in a very simple manner. The record booklets showing the results of the complete examination were re-scored in the manner indicated for each of the abridgments studied. It is recognized, of course, that to score only the items of an abridged scale when all items have been given is not quite the same as to give only the items of the abridged scale.

The scores were resolved into IQ's, thus eliminating spurious correlation due to chronological age range. The IQ obtained on the complete scale was taken as the criterion score and the amount of correlation between it and the IQ of each of the abbreviated forms was determined. Besides the amount of correlation between an abridged form and the complete scale it is desirable to know whether the differences introduced tend more strongly in one direction than in another. Accordingly, the means, calculated from grouped data, are given. Tabulations are given for each abridgment studied showing the frequency of differences in IQ points.

Results for two groups were available. The first group contained cases with a chronological age below sixteen years, while the other group was made up of the adult population. No significant differences between the coefficients for the two groups were found.

The abridgments studied are the simple ones familiar to all who have given the examination. The abbreviated scale which consists of the items designated by means of an asterisk in the publisher's record booklet is reported first. The other forms of abridgment have been

[1] This study was made possible through the kindness of Dr. Luton Ackerson former Director of the Iowa Psychological Clinic.

designated "Upper-lopped," "Lower-lopped," and "Double-lopped" for want of better terms. The term "Upper-lopped" refers to the common practice of assuming that no successes would be made if testing were continued through the level above that at which there was only one successful response. "Lower-lopped" means that the basal year was assumed in a corresponding manner, while "Double-lopped" describes the practice when employed at both ends of the scale. It is readily seen that lopping will not always be possible as a time saving device, owing to the fact that it often happens that more than a single success is made at the highest level while more than a single failure occurs at the lowest level. Accordingly, a set of measures based on the cases where lopping is possible is given under the caption "Effective."

The following tables present the data showing the degree of consistency between the complete and abridged forms of the Stanford-Binet examination.

TABLE I-A

IQ Complete vs. IQ Abbreviated (starred items)

Group	N	r	Mean IQ Complete	Mean IQ Abbreviated	Diff.	P.E. diff.
Below 16 CA	145	.968	63.48	64.04	—0.56	0.17
16 CA and above	112	.972	64.96	65.68	—0.72	0.15
Both groups	257	.969	64.12	64.75	—0.63	0.12

TABLE I-B

Tabulated Differences in IQ Points—Complete-Abbreviated Scale

Deviation	*Below 16 years* N	%	*16 years and above* N	%
±0	29	20.00	22	19.64
±1	42	28.97	41	36.61
±2	34	23.45	24	21.43
±3	26	17.93	14	12.50
±4	5	3.45	4	3.57
±5	3	2.07	3	2.68
±6	0	.....	2	1.79
±7	4	2.76	0	.....
±8	1	.68	0	.....
±9	0	.....	2	1.79
±10	1	.68	0	.....
Total	145	100.00	112	100.00

TABLE II-A

IQ Complete vs. IQ "Upper-lopped"

Group	N	r	Mean IQ Complete	Mean IQ Lopped	Diff.	P.E. diff.
Below 16 CA	145	.990	63.48	63.14	+ 0.34	0.01
16 CA and above	112	.984	64.96	64.23	+ 0.73	0.11
Both groups	257	.989	64.12	63.62	+ 0.50	0.10
Effective	130	.985	63.88	62.79	+ 1.09	0.12

TABLE II-B

Tabulated Differences in IQ Points—Complete-"Upper-lopped" Scale

Deviates (Lopping impossible)	*Below 16 years* N	%	*16 years and above* N	%
—0	77	53.10	50	44.64
—1	49	33.79	41	36.61
—2	6	4.14	1	0.89
—3	5	3.45	8	7.14
—4	3	2.07	6	5.36
—5	2	1.38	2	1.79
—6	0	.....	2	1.79
—7	0	.....	1	0.89
—8	0	.....	0	.....
—9	1	0.69	0	.....
—10	1	0.69	0	.....
Total	1	0.69	1	0.89
	145	100.00	112	100.00

TABLE III-A

IQ COMPLETE VS. "LOWER-LOPPED"

Group	N	r	Mean IQ Complete	Mean IQ Lopped	Diff.	P.E. diff.
Below 16 CA	145	.998	63.48	63.72	—0.24	0.04
16 CA and above	112	.997	64.96	65.33	—0.37	0.05
Both groups	257	.997	64.12	64.42	—0.30	0.04
Effective	129	.994	65.07	65.64	—0.57	0.07

TABLE III-B

TABULATED DIFFERENCES IN IQ POINTS—COMPLETE-"LOWER-LOPPED" SCALE

Deviates	*Below 16 years* N	%	*16 years and above* N	%
(Lopping impossible)	72	49.66	56	50.00
+ 0	54	37.24	33	29.46
+ 1	9	6.21	14	12.50
+ 2	5	3.45	6	5.36
+ 3	4	2.76	3	2.68
+ 4	1	0.69	0	.....
Total	145	100.00	112	100.00

TABLE IV-A

IQ COMPLETE VS. IQ "DOUBLE-LOPPED"

Group	N	r	Mean IQ Complete	Mean IQ Lopped	Diff.	P.E. diff.
Below 16 CA	145	.990	63.48	63.19	+ 0.29	0.10
16 CA and above	112	.980	64.96	64.55	+ 0.41	0.13
Both groups	257	.985	64.12	63.78	+ 0.34	0.08
Effective	197	.981	64.20	63.78	+ 0.42	0.10

TABLE IV-B

TABULATED IQ DIFFERENCES FOR THE "DOUBLE-LOPPED"

Deviates	*Below 16 years* N	%	*16 years and above* N	%
(No lopping possible)	36	24.83	24	21.43
0	71	48.97	48	42.86
± 1	12	8.27	14	12.50
± 2	12	8.27	9	8.03
± 3	7	4.83	9	8.03
± 4	4	2.76	4	3.57
± 5	0	.....	2	1.79
± 6	1	0.69	0	.....
± 7	0	.....	1	0.89
± 8	0	.....	0	.....
± 9	1	0.69	0	.....
± 10	1	0.69	1	0.89
Total	145	100.00	112	100.00

The main purpose of this report is to present the evidence on the degree of consistency between the complete and the abbreviated forms of the examination. However, it is not amiss to give the figures showing the occurrence of each of the possibilities for shortening the examination. It is obvious that the abbreviated form of the scale consisting of four starred items for each age may always be used as a time saver regardless of the scatter of the subjects' successes and failures. The following table shows the frequency of occurrence of each of the methods of lopping:

TABLE SHOWING FREQUENCY OF OCCURRENCE OF THE VARIOUS TYPES OF ABRIDGMENTS

	Number of cases	Percent
Population:		
16 CA and above	112	
Below 16 CA	145	
Total	257	
No lopping possible:		
16 CA and above	25	22.32
Below 16 CA	35	24.14
Total	60	23.35

Can be lopped at top:		
16 CA and above	62	55.36
Below 16 CA	68	46.90
Total	130	50.58
Can be lopped at bottom:		
16 CA and above	56	50.00
Below 16 CA	73	50.34
Total	129	50.19
Can be lopped at both ends:		
16 CA and above	37	33.04
Below 16 CA	32	22.07
Total	69	26.85
Can be lopped at top, bottom, or both:		
16 CA and above	88	78.57
Below 16 CA	109	75.17
Total	197	76.65

Although the selection of an abridgment depends largely on the nature of an individual case, in general one will use the abridgment which gives the most accurate result in the shortest time. It is quite probable that the method of "Double-lopping" best meets both of these criteria. Experience shows that the "Double-lopped" scale and the scale composed of the starred items save an equal amount of time and this study shows the "Double-lopped" scale to be somewhat more dependable.

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A COMPARISON OF SOME GROUP TESTS OF INTELLIGENCE FOR PRIMARY GRADES BY DIFFERENT METHODS

In a recent study reported by the writer,[1] the average of certain measures was used as the basis for a correlation study of intelligence tests. Some inconsistencies in the correlations raised the question as to whether the mean was the most appropriate measure of central tendency for the data studied. It was suggested that the median might have been a fairer measure. It is the purpose of this paper to present a comparison of the results secured from the two methods. In the published study, the criterion called Criterion II was the average of the group IQ's of all tests used in each grade. In the later study the median of the group IQ's of the tests for each grade was used as the criterion. To distinguish the two studies the criteria are referred to as Criterion II Average (CIIAv.) and Criterion II Median (CIIMed.).

Table I shows a comparison of the ranking of the tests for each grade by the Criterion II Average and by Criterion II Median and the changes in rank, plus or minus, which were caused by the use of the median of the IQ's instead of the average.

In the kindergarten the Cole-Vincent and Pintner-Cunningham tests exchanged their ranks with the change in criterion and the Dearborn remained in the third position. In the first grade there is no change in rank for the three highest ranking tests. This seems to corroborate their rating as good tests. The four tests, Kingsbury, Dearborn, Haggerty, and Cole-Vincent, are quite consistent in their rankings by the two criteria. The other two tests, Myers and Detroit, are significantly changed in rank by the use of CIIMed. Myers drops from fourth rank by CIIAv. to eighth rank by CIIMed., while Detroit rises from seventh rank to fourth by the change in criterion. The considerable drop in Myers' rank indicates that its influence on the median GIQ is less than on the average GIQ. On the other hand, the Detroit test seems to have had more influence on the median GIQ than on the average GIQ.

In the second grade a comparison of the rankings by CIIAv. and by CIIMed. shows that if one test, the Myers test, were eliminated the ranking would be identical for the two criteria.

[1] Dougherty, Mary L. *A Comparative Study of Nine Group Tests of Intelligence for Primary Grades.* Baltimore, Maryland: The Johns Hopkins Press, 1928.

TABLE I

PARTIAL CORRELATIONS (CHRONOLOGICAL AGE CONSTANT) WITH CIIAV. AND CIIMED., AND THE CHANGES CAUSED BY THE CHANGE OF CRITERION

For 175 Kindergarten Children

Test	Rank	Correlation with CIIAv.	Test	Rank	Correlation with CIIMed.	Change	
Pintner-Cunningham	1	.944	Cole-Vincent	1	.931	P-C	−1
Cole-Vincent	2	.888	Pintner-Cunningham	2	.897	C-V	+1
Dearborn	3	.799	Dearborn	3	.804	Dn.	0

For 186 First Grade Children

Test	Rank by CIIAv.		Test	Rank by CIIMed.		Change	
Otis	1	.927	Otis	1	.880	Otis	0
Pintner-Cunningham	2	.905	P-C	2	.869	P-C	0
Pressey	3	.883	Pr.	3	.856	Pr.	0
Myers	4	.847	Dt.	4	.833	M.	−4
Kingsbury	5	.846	Dn.	5	.830	K.	−1
Dearborn	6	.825	K.	6	.819	Dn.	+1
Detroit	7	.822	C-V	7	.815	Dt.	+3
Haggerty	8	.809	M.	8	.810	H.	−1
Cole-Vincent	9	.802	H.	9	.768	C-V	+2

For 235 Second Grade Children

Test	Rank by CIIAv.		Test	Rank by CIIMed.		Change	
Otis	1	.854	Otis	1	.839	Otis	0
Kingsbury	2	.836	K.	2	.816	K.	0
Myers	3	.816	Pr.	3	.814	M.	−3
Pressey	4	.813	P-C	4	.811	Pr.	+1
Pintner-Cunningham	5	.810	Dn.	5	.796	P-C	+1
Dearborn	6	.809	M.	6	.766	Dn.	+1
Haggerty	7	.599	H.	7	.518	H.	0

For 204 Third Grade Children

Test	Rank by CIIAv.		Test	Rank by CIIMed.		Change	
Dearborn	1	.959	K.	1	.806	Dn.	−1
Kingsbury	2	.832	Dn.	2	.798	K.	+1
Myers	3	.820	O.	3	.776	M.	−1
Otis	4	.645	M.	4	.745	O.	+1
Haggerty	5	.627	H.	5	.593	H.	0

TABLE II

THE RANKING OF THE TESTS BY THEIR MEDIAN DEVIATION FROM CIIMED.

Test	Rank	Deviation
Kindergarten		
Cole-Vincent	1	0.97
Dearborn	2	1.17
Pintner-Cunningham	3	10.71
Second Grade		
Pintner-Cunningham	1	3.92
Dearborn	2	4.33
Pressey	3	5.53
Kingsbury	4	6.68
Otis	5	6.79
Myers	6	7.27
Haggerty	7	11.61
First Grade		
Cole-Vincent	1	3.48
Dearborn	2	3.73
Detroit	3	4.36
Pintner-Cunningham	4	6.11
Myers	5	6.27
Pressey	6	7.70
Kingsbury	7	8.44
Haggerty	8	9.82
Otis	9	10.55
Third Grade		
Dearborn	1	3.67
Otis	2	4.40
Kingsbury	3	5.63
Myers	4	6.17
Haggerty	5	9.00

In the third grade an exchange of ranks is found for Dearborn and Kingsbury tests, and for Myers and Otis tests. The Haggerty maintains the same rank for the two criteria. The change in correlation with the change in criterion

shows that the Dearborn test is considerably more influenced by the CIIAv. than by the CIIMed. The same is true in less degree of the Myers test. The Otis test is shown to have less influence on IIAv. than on CIIMed.

So far as general conclusions may be drawn from these data, they corroborate the rankings as previously given. The evidence is more positive in the first and second grades where a larger number of tests were used.

A further study was made of the median deviation of each test from the median GIQ. Table II shows the ranks of the tests on this basis.

If these rankings are compared with the rankings secured by correlation methods (Table I) it appears that there is a fairly good correspondence in the rankings, except for the first grade. A correspondence in these rankings would tend to prove the general usefulness or lack of it for a test, but a lack of correspondence would not necessarily discredit either rating since the two methods of ranking have different bases.

Something can be learned regarding a test by discovering the part of the scale in which the measures are located. That is, are they high or are they low with reference to the criterion? Table III shows the deviations of each test by grades from CIIMed.

Theoretically it might be assumed that each test should hold the median rank an equal number of times. This would mean that for the different grades the number of times each test was the median would be as follows:

Kindergarten	First Grade	Second Grade	Third Grade
58, 59	21, 22	33, 34	40, 41

Comparing the data of Table III with these figures it will be seen that, on the whole, there is considerable variation from these standards.

TABLE III

NUMBER AND AMOUNT OF DEVIATIONS OF INDIVIDUAL MEASURES FROM THE CIIMED.

	Number of cases of deviations					*Amount of deviations*		
Test	Zero	Plus	Minus	Total	Test	Plus	Minus	Total
For Kindergarten Children								
Cole-Vincent	90	73	12	175	C-V	395	45	440
Dearborn	86	40	49	175	Dn.	249	387	636
Pintner-Cunningham	27	41	107	175	P-C	343	1696	2039
For First Grade Children								
Cole-Vincent	44	81	61	186	C-V	508	358	866
Dearborn	40	87	59	186	Dn.	502	380	882
Detroit	39	51	96	186	Dt.	238	674	912
Haggerty	11	13	162	186	H.	44	1822	1866
Kingsbury	26	53	107	186	K.	467	1195	1662
Myers	21	66	99	186	M.	775	828	1603
Otis	17	165	4	186	O.	2033	15	2048
Pintner-Cunningham	34	122	30	186	P-C	1039	243	1282
Pressey	29	72	85	186	Pr.	668	878	1546
For Second Grade Children								
Dearborn	53	79	103	235	Dn.	442	687	1129
Haggerty	19	13	203	235	H.	102	2884	2986
Kingsbury	46	78	111	235	K.	709	1063	1772
Myers	40	92	103	235	NM.	1185	874	2059
Otis	31	195	9	235	O.	1695	36	1731
Pintner-Cunningham	57	93	85	235	P-C	592	529	1121
Pressey	43	127	65	235	Pr.	1088	402	1490
For Third Grade Children								
Dearborn	67	50	87	204	Dn.	312	712	1024
Haggerty	31	62	111	204	H.	732	1264	1996
Kingsbury	46	63	95	204	K.	492	879	1371
Myers	46	94	64	204	M.	1471	487	1960
Otis	53	120	31	204	O.	1010	173	1183

From this table is derived Table IV which repeats the number plus and minus deviations and gives the average plus and minus deviations respectively for each test.

An examination of the extent to which different tests fall above or below the median and the average amounts of such deviations shows interesting variations. In the kindergarten the Pintner-Cunningham test has nearly three times as many minus deviations as it has plus deviations and the average minus deviation (15.85) is more than twice the average plus deviation. This suggests that the Pintner-Cunningham test was very difficult for these children. A comparison of the same measures for the other two tests shows it to be much more difficult than either of them. It should be noted that this is not necessarily an indictment of the test. Pintner-Cunningham stood high in its correlations with the criteria. There is, however, something to be gained by knowing whether a relatively high or low rating is to be expected from the use of a given test.

In first grade two tests stand out as markedly deviating from the balanced distribution. The Haggerty test is shown to be exceptionally difficult for this group. Its average minus deviation is more than three times its average plus deviation and the number of minus deviations is more than twelve times the number of plus deviations. On the other hand, Otis is extremely easy, having 41 times as many plus deviations as minus deviations and having an average plus deviation more than three times the average minus deviation.

In second grade also these two tests show wide variations from a normal distribution. Haggerty test has fifteen

TABLE IV

NUMBER AND AVERAGE OF THE DEVIATIONS FROM CIIMED.

Test	Number of Cases of Plus Deviations	Average Amount of Plus Deviations	Number of Cases of Minus Deviations	Average Amount of Minus Deviations
Kindergarten				
Cole-Vincent	73	5.41	12	3.75
Dearborn	40	6.23	49	7.90
Pintner-Cunningham	41	8.36	107	15.85
First Grade				
Cole-Vincent	81	6.27	61	5.87
Dearborn	87	5.77	59	6.44
Detroit	51	4.67	96	7.02
Haggerty	13	3.38	162	11.25
Kingsbury	53	8.81	107	11.17
Myers	66	11.74	99	8.36
Otis	165	12.32	4	3.75
Pintner-Cunningham	122	8.52	30	8.10
Pressey	72	9.28	85	10.33
Second Grade				
Dearborn	79	5.59	103	6.67
Haggerty	13	7.85	203	14.21
Kingsbury	78	9.09	111	9.58
Myers	92	12.88	103	8.49
Otis	195	8.69	9	4.00
Pintner-Cunningham	93	6.37	85	6.22
Pressey	127	8.57	65	6.18
Third Grade				
Dearborn	50	6.24	87	8.18
Haggerty	62	11.81	111	11.39
Kingsbury	63	7.81	95	9.25
Myers	94	15.65	64	7.64
Otis	120	8.42	31	5.58

times as many minus as plus deviations and the average minus deviation is nearly twice the average plus deviation, while the Otis test has twenty-one times as many plus as minus deviations and its average plus deviation is more than twice its average minus deviation.

In both these grades the Pintner-Cunningham test, which was apparently very difficult for the kindergarten, shows a very good balance between plus and minus deviations as to average amount and in the second grade also as to number.

In third grade the Haggerty test seems to be approaching a place of greater usefulness as evidenced by a good balance between the average amounts of the plus and minus deviations and a much decreased difference between the number of plus and minus deviations. This corroborates some evidence from the earlier study which suggested that Haggerty was a more satisfactory test for third grade than for first or second grades. Otis test shows still a considerable overbalance of plus deviations both in number and amount. This suggests that in using the Otis Primary Test it will be well to keep in mind that it tends to give higher ratings than other tests in relation to the criterion used here though it stands quite well in its ranking by correlation.

The Myers test stands out in the third grade by reason of its having the average amount of its plus deviations twice the average of its minus deviations though there is not much difference in the number of these. In the first and second grades Myers also showed higher average minus deviations and was fairly well balanced as to the number of these deviations. The variation in ranking of this test by correlation with different criteria indicates that it should be used with caution. Further study would be necessary to make possible an unequivocal recommendation of this test.

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THE SPEAKING AND WRITING ABILITIES OF INTERMEDIATE GRADE PUPILS

Speaking and writing are the child's two chief means of expressing ideas. It is important to be able to determine with reasonable accuracy which of these two modes of expression is more effective than the other at any stage of the child's learning; for when it is desirable for the child to express his ideas freely and completely he should use his most effective implement of expression.

In general we know, without testing, that the children in the primary grades express ideas better through speaking than writing; and yet, even here, it is probable that in the third grade, at least, some pupils will be found to write as well or better than they speak. It is important to find such pupils in order that their expression work may be more intelligently directed.

In all grades, from the third through the fourth, fifth, and sixth, we may expect pupils to vary greatly in their abilities to use these two modes of expression. This consideration has led us to attempt to devise a system of speaking and writing tests and a common scale of measurement, insofar as these two modes of expression are comparable.

The tests were given to all pupils in the Kansas State Teachers College Training Schools, of Emporia, in grades one to eight, inclusive, involving some three hundred and fifty pupils. The testing was done according to the following plan:

I. General Administration of the Two Series of Tests

A. First Series:

1. Individual pupils of each grade were tested separately in speaking and

writing on topics of their own choice.

a. The names of the pupils of each grade were numbered serially, as 1, 2, 3, etc.

b. Each pupil was tested on the same topic orally and in writing.

c. Each pupil having an even number took the written test first.

d. Each pupil having an odd number took the oral test first.

e. Then each pupil was tested on the same topic, in reverse order, the odd numbers writing and the even numbers speaking.

B. Second Series:

1. Individual pupils of each grade were tested separately in speaking and writing on new topics of their own choice, according to the plan as above described under A, 1, a, b, c, d, e, but in reverse order.

C. General Arrangement for Taking the Tests:

Order	Grade giving spoken and written exposition	Grade serving as audience
1	8A	9A and 9B
2	8B	8A
3	7A	8B
4	7B	7A
5	6A	7B
6	6B	6A
7	5A	6B
8	5B	5A
9	4A	5B
10	4B	4A
11	3A	4B
12	3B	3A
13	2A	3B
14	2B	2A
15	1A	2B
16	1B	1A

II. Regulations Governing Spoken and Written Expositions

A. Each pupil gave complete spoken and written expositions of his topics to the audience, but no pupil of his grade was present to hear his spoken expositions, and no pupil of his grade read his written expositions.

B. Each pupil had at least two days of preparation (along with his other school work) before he gave his first exposition in each series, whether it was oral or written.

C. He gave as complete preparation as possible for his expositions, but the teacher did not allow him to practice, either in speaking or in writing, on his exposition before he was tested. The teacher, however, did assist him by indicating sources of information and answering his questions regarding any phase of his topic.

D. The various grades of pupils found their general sources of materials in the following classes:

1. Grade 8A in U. S. History.
2. Grade 8B in U. S. History.
3. Grade 7B in Geography.
4. Grade 7B in Geography.
5. Grade 6A in History.
6. Grade 6B in History.
7. Grade 5A in History.
8. Grade 5B in History.
9. Grade 4A in History.
10. Grade 4B in History.
11. Grade 3A in Geography and Nature Study.
12. Grade 3B in Geography and Nature Study.
13. Grade 2A in Geography and Nature Study.
14. Grade 2B in Geography and Nature Study.
15. Grade 1A in Geography and Nature Study.
16. Grade 1B in Geography and Nature Study.

E. Expert stenographers took each oral exposition, verbatim.

F. Each pupil was given ample time to complete his expositions, both in speaking and writing.

G. It was essential that each pupil should have the highest degree of interest and motive for speaking and writing upon his topic. Each pupil was assisted

in selecting a topic of interest to him, and then he thoroughly prepared himself for the tests.

III. Explanation of the Testing Plan

Each pupil had an audience, both for his speaking and his writing. The pupils were cautioned not to receive any outside assistance and not to memorize what they had to say or write on their topics. In a few instances, however, where anxious parents caused these directions to be disobeyed, the children's records were thrown out. If a pupil spoke before he wrote on the same topic in Series I, he wrote before he spoke in Series II. This arrangement gave his writing the advantage of having spoken first in Series I, and his speaking the advantage of having written first in Series II. In this way calculations could be made in comparing his relative efficiency in the two forms of expression. The remaining part of the plan needs no explanation, except to say that the materials, history, civics, geography, and nature study were chosen as the basis for the spoken and written themes because of their great interest to the children.

IV. Judging Results

There are, of course, certain incomparable items of expression in spoken and written discourse, such as enunciation, pronunciation, quality of voice, pitch, emphasis, volume, pauses, etc., in spoken discourse; and spelling, punctuation, and capitalization in written discourse. We can compare spoken and written discourse only in so far as there are comparable items in the two. The comparable items of technic in these two modes of expression are the following:

Content. This is to be judged, first, in terms of the general impression of the comparative values of the thought content of the spoken and written compositions, and second, in terms of orderly sequences as they are exhibited in the logical arrangement of the thought content in sentences and in clear and definite statements.

Grammar. This is to be judged in terms of the use of complete sentences, correctly placed modifiers, words and phrases in their correct order, the use of compound sentences, the agreement of pronouns and antecedents, use of case forms, and other grammatical points not connected with verbs, and, finally, the agreement of subject and verb, tense, sequence in tenses, and the use of correct verb forms.

Diction. This is to be judged in terms of the choice of words and expressions in good usage, the omission of words, and the use of superfluous words as in repetitions, interjections, and unnecessary and unconnected words.

There are fringes of technic in spoken and written discourse which are incomparable; yet there is a large, common, central area of fundamental thought-giving technic in these two forms of expression, in which relative efficiency comparisons may be made approximately valid. It is conceivable, of course, that a child might possess equal abilities in using the common items of technic in both speaking and writing, but would be less effective in the former than in the latter because of deficiencies in enunciation, pronunciation, pitch, quality of voice, etc. It is conceivable, also, that he might be less effective in written discourse because of his deficiencies in spelling, punctuation, capitalization, and hand-writing. Validity of comparison is claimed only in so far as the processes involved are comparable.

V. The Construction and Use of Score Sheets

Three supervising teachers of English,[1] selected from the intermediate grades and junior high school, with the writer, made a careful study of a large number of the stenographic records of the spoken discourse and of the corresponding written compositions of pupils representing various grades. Some so-called standard composition tests were also studied. Finally, a tentative score sheet was constructed. Then, following considerable practice in using the score sheet on various samples of spoken and written composition, the tentative score sheet was revised until a final copy was agreed upon.

When the actual work of scoring was carried on, the three teachers above mentioned did the work by scoring the papers first in Series I and then in Series II, beginning with the upper grades and working toward the lower. Each teacher checked the work of the other until all agreed upon the scores to be given.

Each pupil's written work was compared with the records of his spoken discourse on the same topic, first in Series I and then in Series II. If a pupil's spoken discourse proved better in quality than his written discourse, the appropriate blank on the score sheet was marked with *S*; or with *W* if his written discourse proved better. When the pupil's written work was as good as his spoken in any designated respect, as, for example, in one use of verb forms, then no score was entered; the scores being equally good cancelled each other. Complete sample tabulations of grades 7B, 5B, 4A, and 3A, were entered in Table I. Owing to the large amount of space required for the entries, only the headings of Table I can be published in this article.

TABLE I

SCORES IN SPOKEN AND WRITTEN DISCOURSE

	Grade	
	Pupil Number	
Series I Series II	Quality	Content
Series I Series II	Orderly Sequence	Content
Series I Series II	Complete Sentence	Grammar
Series I Series II	Placing Modifiers	Grammar
Series I Series II	Compound Sentences	Grammar
Series I Series II	Agreement	Grammar
Series I Series II	Verb Forms	Grammar
Series I Series II	Vocabulary	Diction
Series I Series II	Omission of Words	Diction
Series I Series II	Superfluous Words	Diction
Series I Series II	Spoken Discourse	Diction
Series I Series II	Written Discourse	Diction
Both Series	Number of Spoken Items Superior	Scores
Both Series	Number of Written Items Superior	Scores
Both Series	Number of Spoken and Written Items Equal	Scores

VI. Comments on the Results of the Scores

The tabulation of scores shows that the transition from greater excellence in spoken discourse to greater excellence in written discourse took place, counting each grade as a unit, between the 4A grade and the 5B grade. The summaries for all grades tested are found in Table II:

[1] Miss Leona Brown, Miss Frances Broehl, and Miss Phoebe Butler.

TABLE II

SUMMARY OF SCORES IN SPOKEN AND WRITTEN DISCOURSE

Grade	Number Pupils Superior in Writing	Number Pupils Superior in Speaking	Number Pupils Equally Efficient in Both	Total Number Pupils
8A	13	2	0	15
8B	8	1	1	10
7A	12	3	1	16
7B	15	1	0	16
6A	18	2	1	21
6B	20	5	1	26
5A	14	6	1	21
5B	11	8	1	20
4A	9	11	1	21
4B	4	10	2	16
3A	4	11	4	19
3B	3	14	0	17
2A	0	25	0	25
2B	0	26	0	26
1A	0	28	0	28
1B	..	25	0	25
All	131	178	13	322

A steady comparative gain in written expression may be seen in Table II by reading upward from the 4B Grade to the 7B, inclusive. There is a slight dropping back in the comparative writing efficiency in grades 7A, 8B, and 8A.

What do these variations in the ability of pupils to express their ideas in speaking and writing mean? It is clear that the pupil's ability in written expression should, as it does, overtake his speaking expression; for it is desirable that his writing should be as efficient as his speaking in advancing his thinking and experience. But what shall we say when, from that point, his writing goes on becoming increasingly more efficient than his speaking? Which mode of expression is used more by pupils in school and by the average person outside of school? Are not the social needs for speaking effectively even greater than those for writing? Until this question can be answered more scientifically by a process of sampling the social needs for these modes of expression, we may safely assume that the increasing difference between the two should not be so great after they have come together for any individual pupil.

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THE SELF-DIRECTED JUNIOR HIGH SCHOOL AT WORK

It is argued by many that the conventional method of assigning lessons and hearing recitations is responsible for much of the present day maladjustment in our schools. There is a demand for a new procedure. The East St. Louis Junior High School has introduced a plan of pupil self-direction into the activities of the school as a means of providing vital learning situations. In applying the ideal of self-direction to all school activities, it has been the intention to put the responsibility for working out, executing, and appraising plans upon the pupils.

The experiment here reported sought to determine: (1) to what extent pupils could and would direct their own learning activities; (2) the function of the teacher in the new environment; (3) the best organization of instructional materials for pupil-self-direction; (4) the attitude of the pupil toward the school; and (5) the results in terms of learning products.

The instructional materials were organized into "job sheets" or learning units (teacher and pupils working together) with objectives and accompanying learning activities arranged into in-

tegrating units on four levels of difficulty. Each difficulty level was termed a contract. The intention was to offer in each contract different types of learning activities that would challenge the various interests and capacities of unselected groups. The first contract included the common essentials and filled the requirements for the lowest pass mark. The additional contracts represented an enrichment; each one furnished a basis for earning the higher pass marks.

Pupils advanced from one contract to the next as mastery was attained. No attempt was made to keep the pupils working together nor to require all pupils to engage in all the learning activities. The recitation became a learning period in which the teacher played the role of consulting expert. In this situation the pupil was a co-partner with the teacher in planning learning activities and appraising outcomes. When direction became a function of the teacher, the procedure confronted the pupil with situations that required him to make a choice. The aim was to keep all working up to capacity.

To aid the pupil in appraising his own achievement, self-scoring diagnostic tests of the objective type were devised by the teacher and used by the pupil in judging his mastery. Pupils progressed from one contract to the next as mastery was indicated by the inventory tests. A mastery test was given by the teacher in determining the final rating and progress of the pupil. The final marks were assigned on the basis of the number of contracts mastered.

To measure the learning outcomes four equivalent groups were used. Two groups were taught by the conventional method and two by the contract method under the principle of self-direction. The following tables indicate the comparative outcomes:

TABLE I

SHOWING THE AVERAGE SCORES FOR GRADE EIGHT-TWO AS DETERMINED BY "RETENTION" TESTS OF THE MATERIALS STUDIED

Group	*Arithmetic*	*English*	*History*
Control	21.2	21.1	21.6
Experimental	25.1	24.9	22.4
Difference	3.9	3.8	0.8

TABLE II

SHOWING THE AVERAGE SCORES FOR GRADE NINE-TWO AS DETERMINED BY "RETENTION" TESTS OF THE MATERIALS STUDIED

Group	*English*	*Algebra*	*Civics*	*General Science*
Control	20.0	72.2	81.5	43.3
Experimental	24.1	74.4	82.6	43.8
Difference	4.1	2.2	1.1	0.5

The retention tests were based on materials that had been used in carrying on the learning activities three months previous to the testing. The differences in scores for Arithmetic, eighth-grade English, and ninth-grade English are sufficiently large to be statistically significant as to method.

While the data in the tables disclose differences in some cases that are not statistically significant, they do, however, point to better learning as a general trend of outcomes where the contract plan was used.

Other measures of the self-directed plan were considered even more favorable. In the extra-curricular activities the pupils were quite as successful as the teachers had been in planning and carrying out appropriate activities. The active interest on the part of the pupils for these activities, however, was more marked. The attitude toward all school requirements on the part of the pupils was judged by the faculty to be exceptionally favorable and sympathetic.

The percentage of failures was reduced one-half. Approximately 70 percent of the pupils made higher marks than when they were under the conventional type of

TABLE III

SHOWING THE MEAN SCORES OF GRADE EIGHT-TWO FOR THE SANGREN-WOODY READING TEST, FORM A, GIVEN AT THE BEGINNING OF THE EXPERIMENT AND FORM B, GIVEN AT THE END OF THE EXPERIMENT

	Standard	*Control Group*		*Experimental Group*	
Item Measured	*Scores*	*A*	*B*	*A*	*B*
Word Meaning	27	28.3	28.8	28.6	30.1
Rate	23	27.2	27.4	26.6	27.4
Fact Material	14	13.5	13.6	12.8	13.0
Total Meaning	9	9.4	9.5	9.5	11.2
Central Thought	6	8.0	8.1	7.9	8.4
Following Directions	7	7.2	7.1	7.1	7.1
Organization	8	9.5	9.5	9.3	10.3

TABLE IV

SHOWING THE MEDIANS OF EACH EIGHT-TWO GROUP AS DETERMINED BY BARR'S DIAGNOSTIC TESTS IN AMERICAN HISTORY, SCALE 2B

Test	*Temporary Standards*	*Control Group*	*Experimental Group*
I	7.2	8.0	10.5
II	7.1	7.2	6.7
III	5.7	5.7	9.7
IV	9.6	11.3	11.7
V	5.4	4.2	6.1

TABLE V

SHOWING THE MEDIANS OF THE NINE-TWO GROUPS AS DETERMINED BY TRESSLER'S ENGLISH MINIMUM ESSENTIALS TEST, DVORAK GENERAL SCIENCE SCALES, AND THE COLUMBIA BUREAU ALGEBRA TEST

			Algebra 1 and 2	
Group	*English*	*General Science*	*1*	*2*
Standard Scores	46.1	80.0	12.0	4.0
Experimental	44.5	84.9	9.5	5.5
Control	40.0	84.7	11.5	6.5
Difference	4.5	0.2	2.0	1.0

school organization and instruction. There were 76 percent of the pupils who declared that they favored the contract plan and the principles of self-direction. Not one parent complained of the procedure. Most pupils declared in favor of the contract plan because they received the grade they earned. Both parents and pupils approved the plan because it allowed opportunity for initiative and creative effort and the advancement of pupils at their individual rates of learning.

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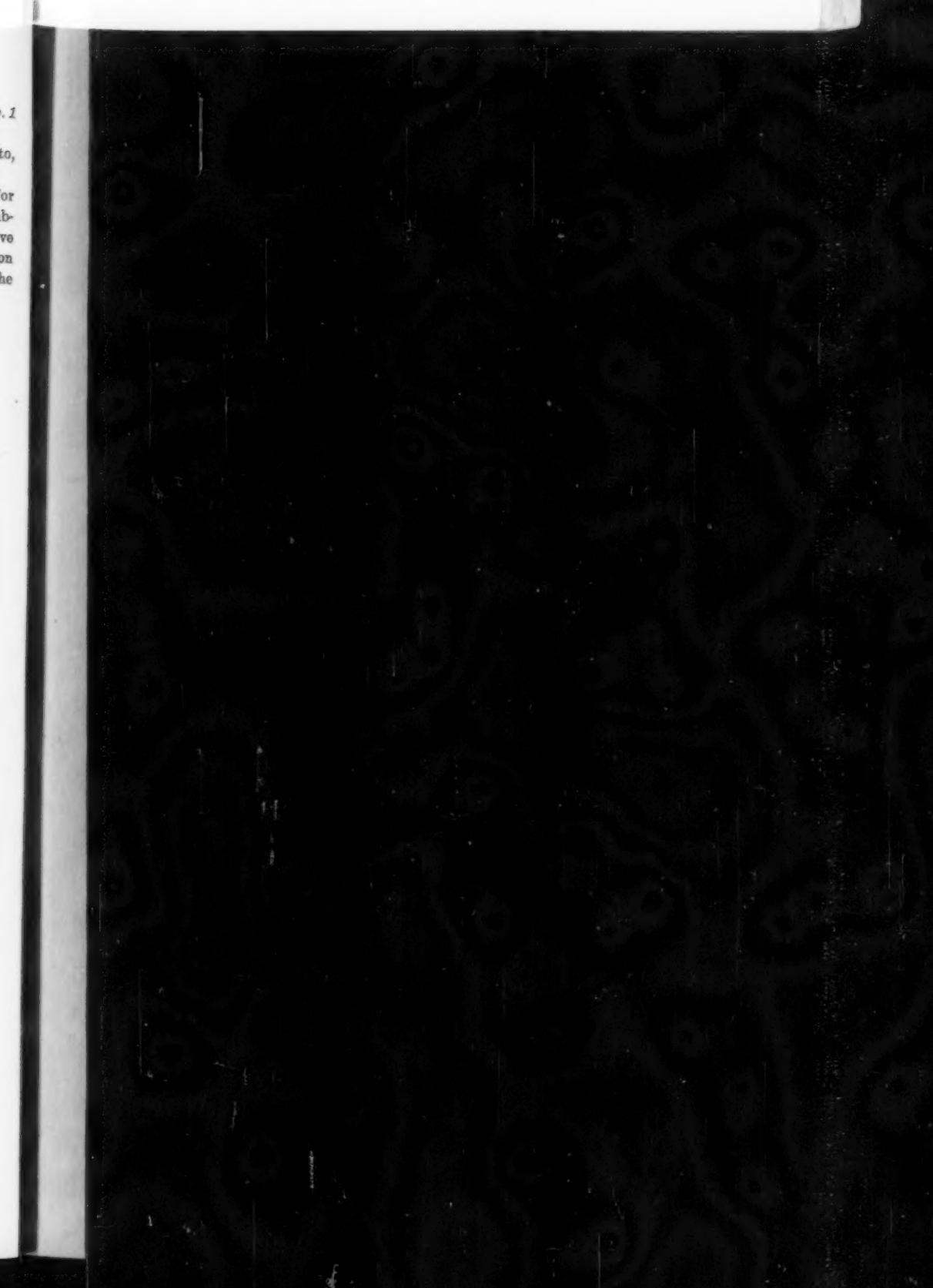
PLANS OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION FOR THE SUBVENTION OF RESEARCH.

At the meeting of the Board of Directors held at Rochester, New York, November, 1928, it was voted to increase the investments of the Society in interest-bearing securities by two thousand dollars or more annually until a permanent fund of approximately twenty thousand dollars is accumulated, the income of which (approximately one thousand dollars annually) shall thereafter be employed, under direction of the Board, for the stimulation and subvention of investigations in the field of education.

As will be evident from an examination of the Treasurer's annual report, this permanent fund will presumably be established in five or six years. However, in order that this undertaking of the Society may not be delayed, the Board of Directors also voted that, pending the completion of the fund, the Society announce its willingness to consider the support of such proposals for educational research as meet the approval of the Board, and that provisionally the sum of

two thousand dollars be allocated to this purpose.

The investigations contemplated under this new development of the Society's activities are conceived of as carried on independently of the activities of the Society's various yearbook committees, though it is assumed that the investigations will often emerge from, or lead to, the production of yearbooks.

Members of the National Society for the Study of Education are urged to submit proposals for research or constructive suggestions for the general organization and development of this phase of the Society's work.

GUY M. WHIPPLE, *Secretary.*